

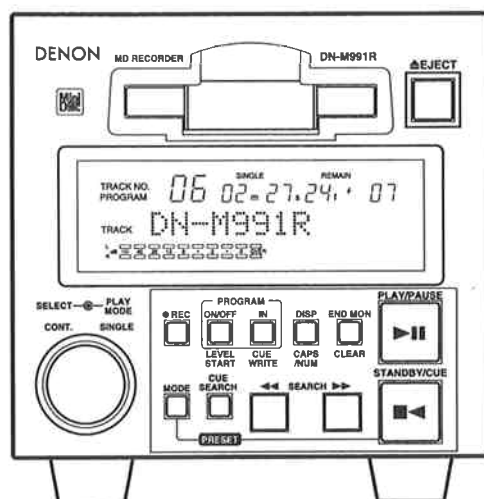
DENON

Hi-Fi Component

SERVICE MANUAL

MODEL DN-M991R

MD RECORDER



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● Some illustrations using in this service manual are slightly different from the actual set.

NIPPON COLUMBIA CO., LTD.

SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the unit is defective.

SPECIFICATIONS

GENERAL

Type:	MiniDisc recorder
Recordable/Playable Discs:	Playback: Pre-mastered MDs and recordable MDs Recording: Recordable MDs
Recording System:	Magneto-optical overwriting system (Magnetic field modulation)
Signal Compression System:	ATRAC (Adaptive transform acoustic coding) version 4.0
Rotating Speed:	Approx. 400 to 900 rpm.
Recording/Playback Time:	74 min. (Stereo), 148 min. (Mono)

AUDIO SECTION

Channels:	2 channels (Stereo), 1 channel (Mono)
Sampling Frequency:	44.1 kHz
Quantization Bits:	A/D converter: 16 bit, D/A converter: 18 bit
Frequency Response:	20 to 20,000 Hz (± 1.0 dB)
Total Harmonic Distortion:	0.015 % or less (Playback, A filter) 0.035 % or less (Recording, A filter)
Signal to Noise Ratio:	100 dB or higher (Playback, A filter) 84 dB or higher (Recording, A filter)
Channel Separation:	90 dB or higher (Playback, A filter) 80 dB or higher (Recording, A filter)
Analog Output:	(1 kHz, 0 dB playback)
Connector:	XLR connector
Output Level:	+18 dBs, 600 Ω /ohms
Monitor Output:	20 mW or greater (30 to 40 Ω /ohms)
Analog Input:	
Connector:	XLR connector
Input Level:	+18 dBs, 10 k Ω /kohms
Digital Output:	
Connector:	XLR connector
Signal Format:	AES/EBU or IEC-958 Type I
Output Level:	3 Vp-p or greater, 110 Ω /ohms
Digital Input:	
Connector:	XLR connector
Signal Format:	AES/EBU or IEC-958 Type I
Input Level:	3 to 10 Vp-p, 110 Ω /ohms
Variable Pitch Control:	± 8 %
Audio Start-up Time:	0.03 second less
Frame Search Accuracy:	1 frame (1/86 second)

DIMENSIONS

Without feet:	144 (W) x 133 (H) x 401 (D) (5-43/64" x 5-15/64" x 15-25/32")
With feet:	144 (W) x 146 (H) x 401 (D) (5-43/64" x 5-3/4" x 15-25/32") (Not including dials and terminals)

WEIGHT

Recorder unit:	5.0 kg (11.02 lbs)
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POWER CONSUMPTION:

22 W

POWER SUPPLY:

AC 120 V ± 10 %, 60 Hz (U.S.A. & Canada)
AC 230 V ± 10 %, 50 Hz (Europe, Asia & Others)

ENVIRONMENTAL CONDITIONS

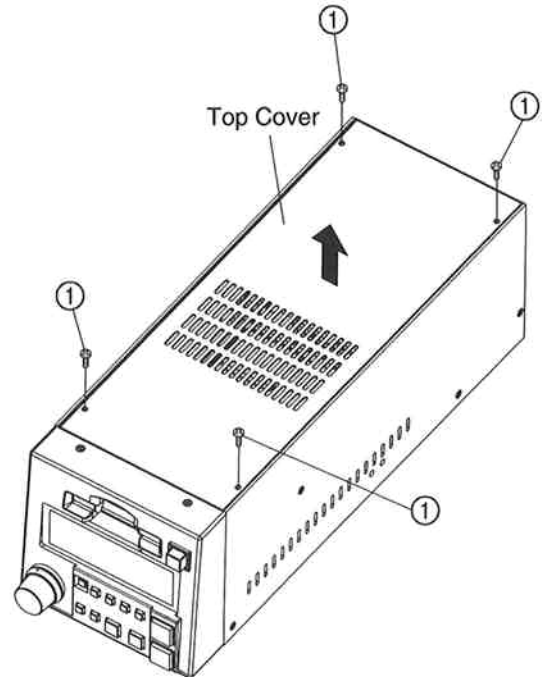
Operating Temperature:	+5 °C to 35 °C
Humidity:	25 % to 85 %, non condensing
Storage Temperature:	-20 °C to 60 °C

DISASSEMBLY

(Follow the procedure below in reverse order when reassembling)

Top Cover

Remove 4 screws ① and pull up Top cover.

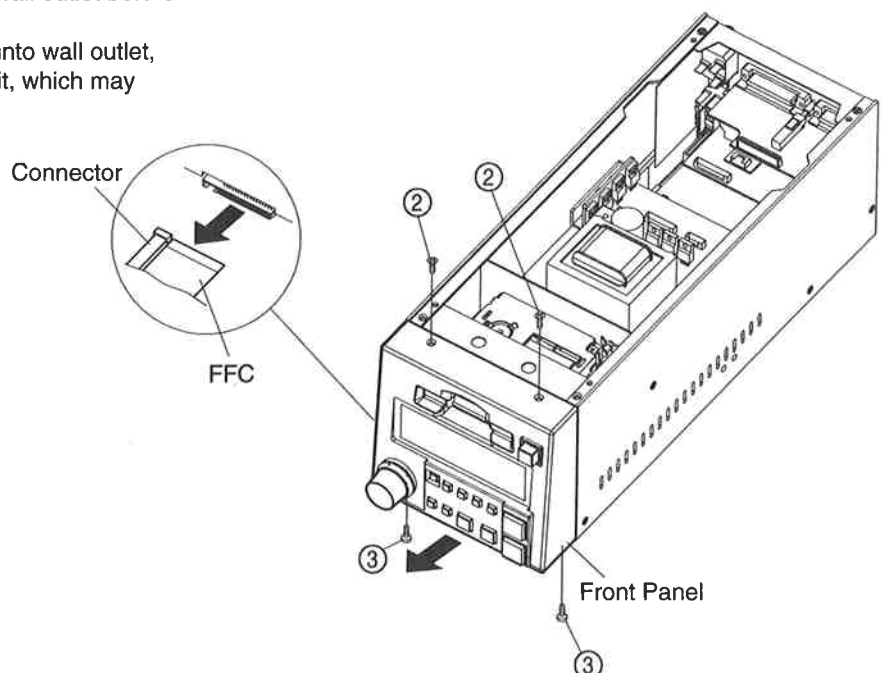


Front Panel

- (1) Remove 2 upper screws ② and 2 lower screws ③.
- (2) Disconnect FFC cable and Connector.
- (3) Detach Front Panel.

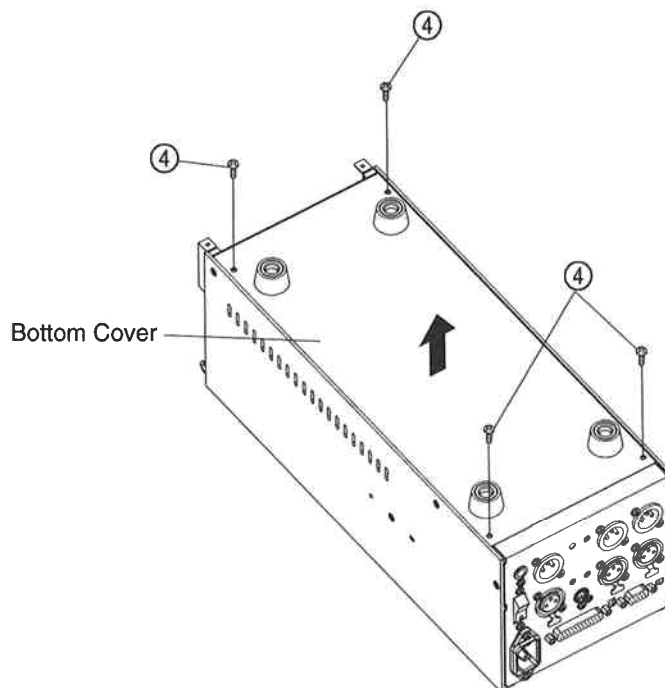
Note: • Do not pull out aslant to prevent FFC cable damage.

- Do not fail to pull AC cord from wall outlet before disconnect the FFC cable.
If AC cord is remained plugged into wall outlet, power is kept supplied in the unit, which may cause danger.



Bottom Cover

Remove 4 screws ④ and pull up Bottom cover.

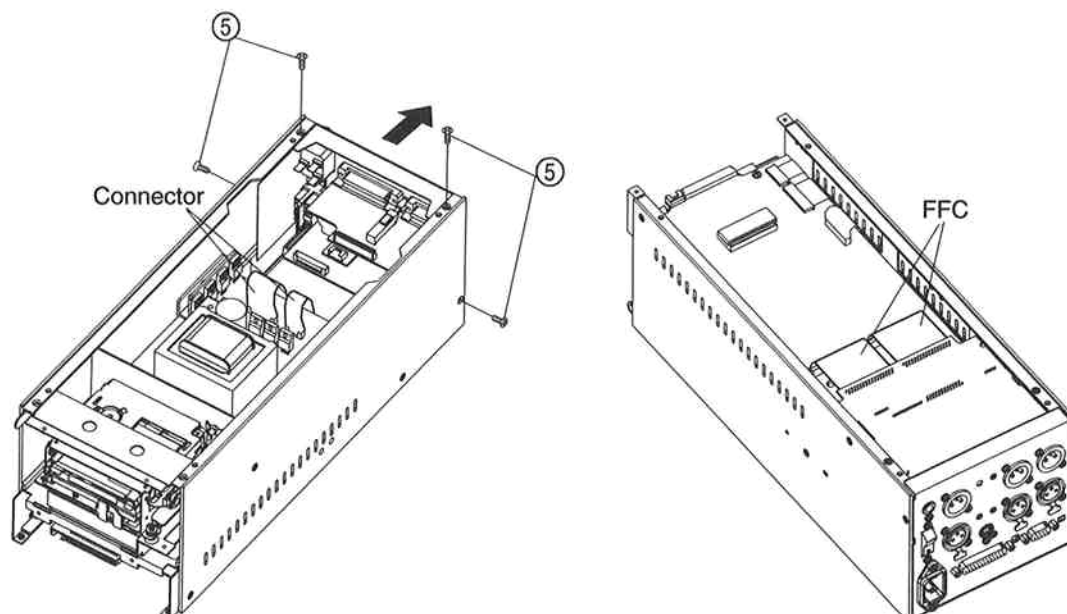


Rear Panel

- (1) Remove 2 upper screws ⑤ and 2 screws ⑤ on the both sides.
- (2) Disconnect FFC cable and Connector.
- (3) Detach Rear Panel.

Note:

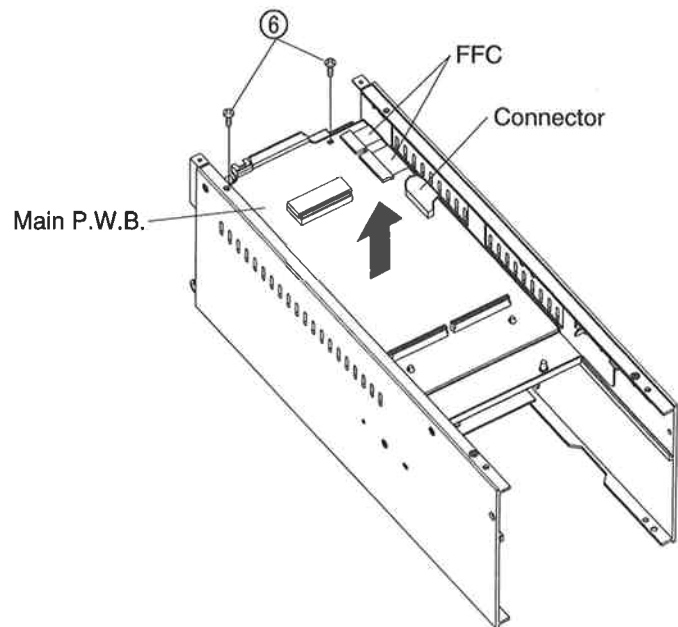
- Do not pull out aslant to prevent FFC cable damage.
- Do not fail to pull AC cord from wall outlet before disconnect the FFC cable.
If AC cord is remained plugged into wall outlet, power is kept supplied in the unit, which may cause danger.



Main P.W.B.

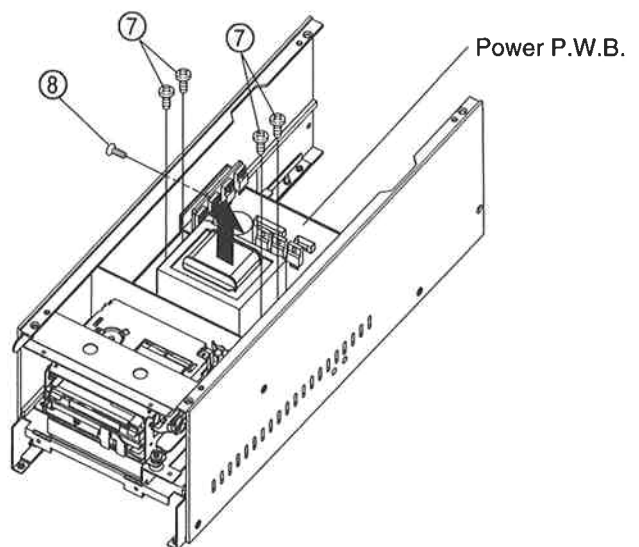
- (1) Remove 2 screws ⑥.
- (2) Disconnect FFC cable and Connector.
- (3) Detach Main P.W.B.

Note: Do not pull out aslant to prevent FFC cable damage.



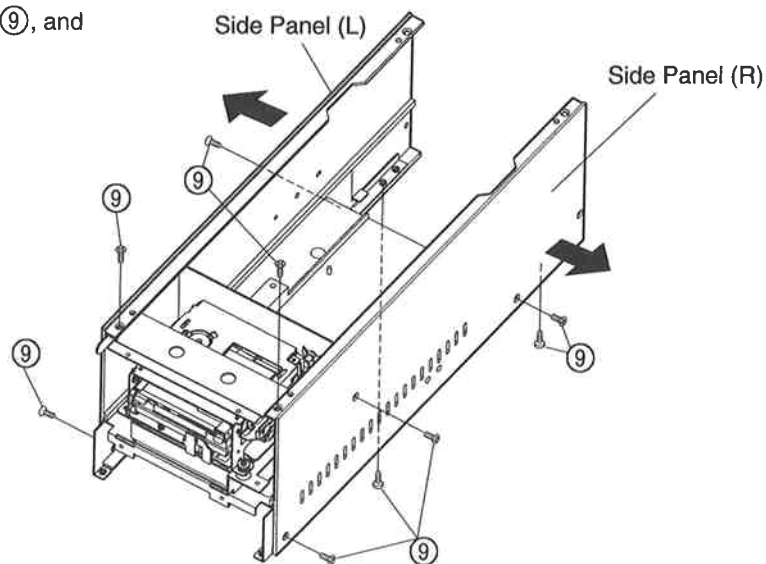
Power P.W.B.

- (1) Remove 4 screws ⑦ and screw ⑧.
- (2) Pull up Power P.W.B.



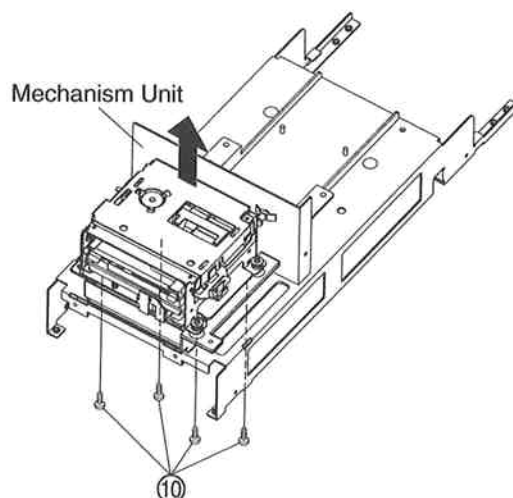
Side Panel

- (1) Remove 2 upper screws ⑨ and 2 lower screws ⑨, and 5 screws ⑨ on the both sides.
- (2) Detach Side Panel (L) and Side Panel (R).



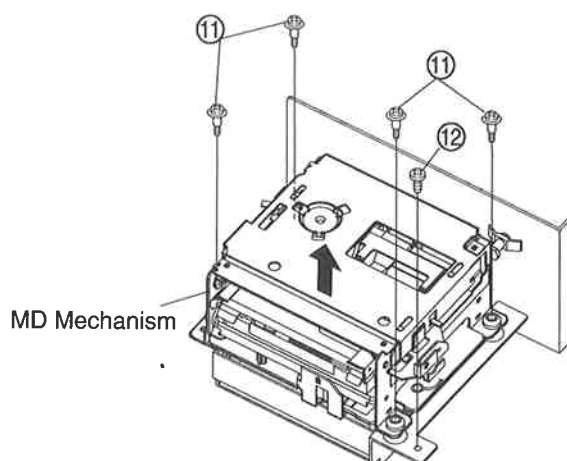
Mecha Unit

Remove 4 screws ⑩ and pull up Mechanism Unit.



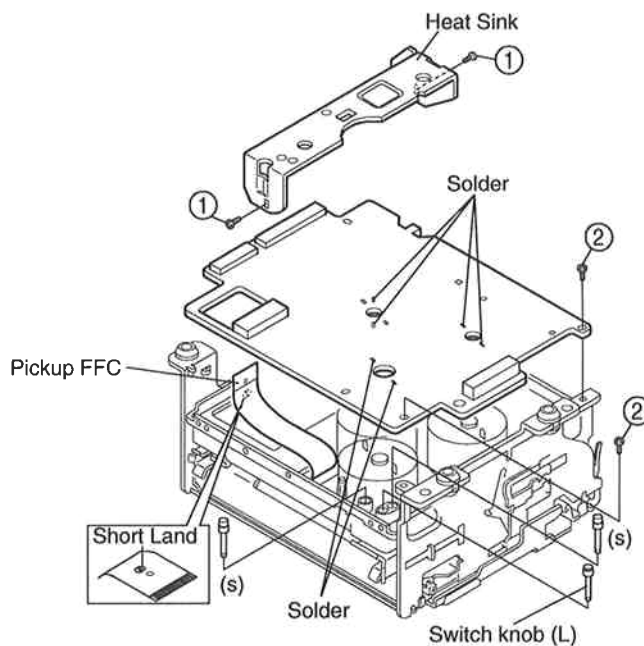
MD Mecha.

- (1) Remove 4 screws ⑪ and screw ⑫.
- (2) Pull up MD Mechanism.



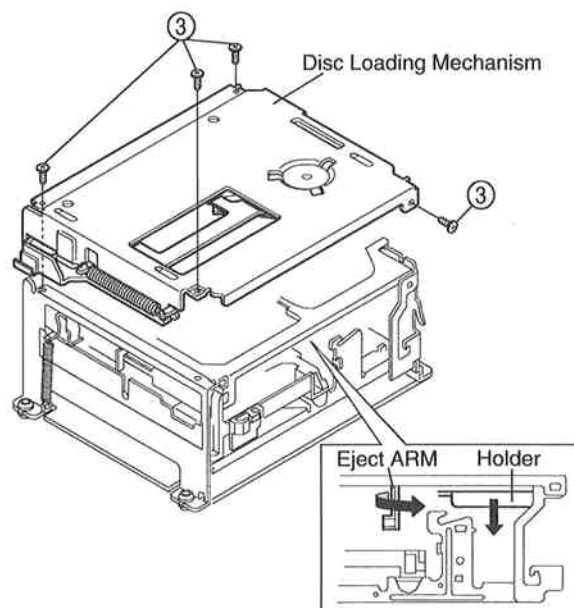
Mechanism P.W.B.

- (1) Remove 2 screws ①, and detach the Heat Sink.
- (2) Remove 6 soldered motor terminals.
- (3) Remove 2 screws ②.
- (4) Short-circuit the short land of the Pickup FFC with solder.
- (5) Release the Pickup FFC, and detach the Mechanism P.W.B.
- (6) Remove 3 switch knobs (L) and (S).



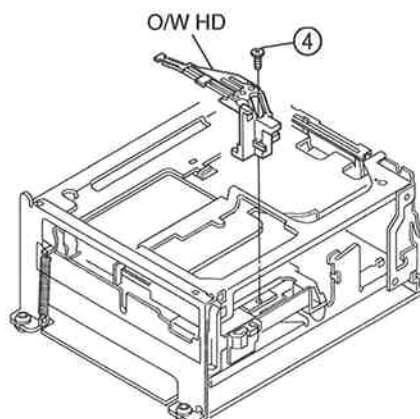
Disc Loading Mechanism

- (1) Lower the Holder by rotating and pulling the Eject Arm.
- (2) Remove 4 screws ③, and detach the Disc Loading Mechanism.



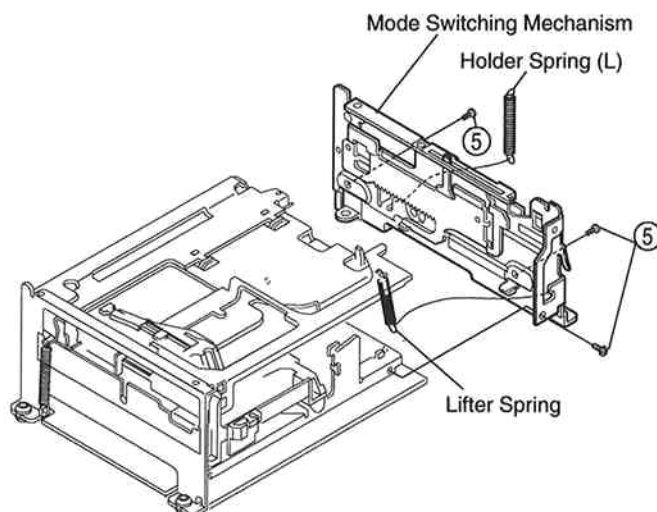
Over Write Head

- Remove 1 screw ④, and detach the O/W HD.



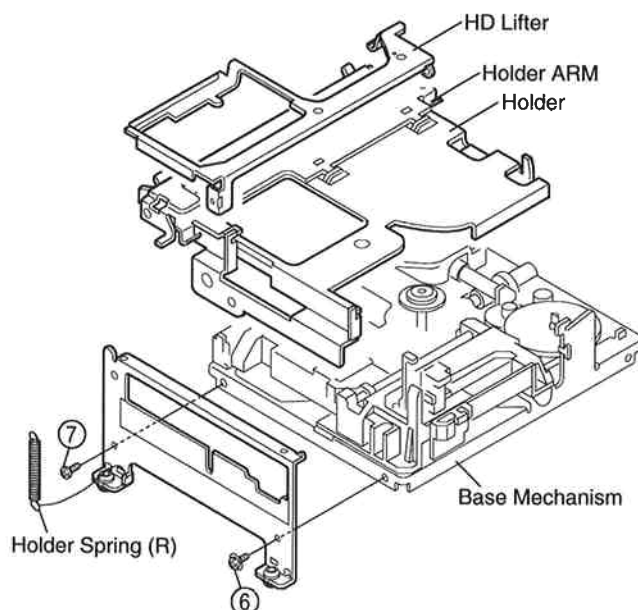
Mode Switching Mechanism

- (1) Release the Lifter Spring and Holder Spring (L).
- (2) Remove 3 screws (5), and detach the Mode Switching Mechanism.



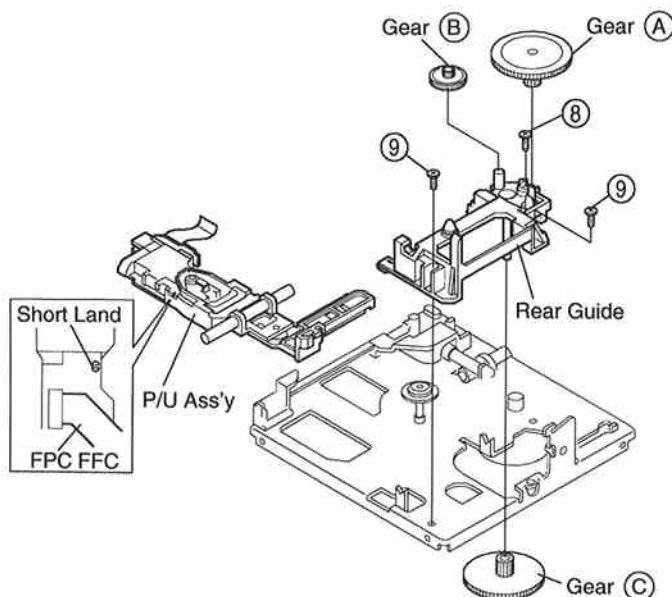
Base Mechanism

- (1) Complete the previous steps 1 ~ 3 beforehand.
- (2) Release the Holder Spring (R).
- (3) Remove 2 screws (6) and (7) from the Side Bracket (R).

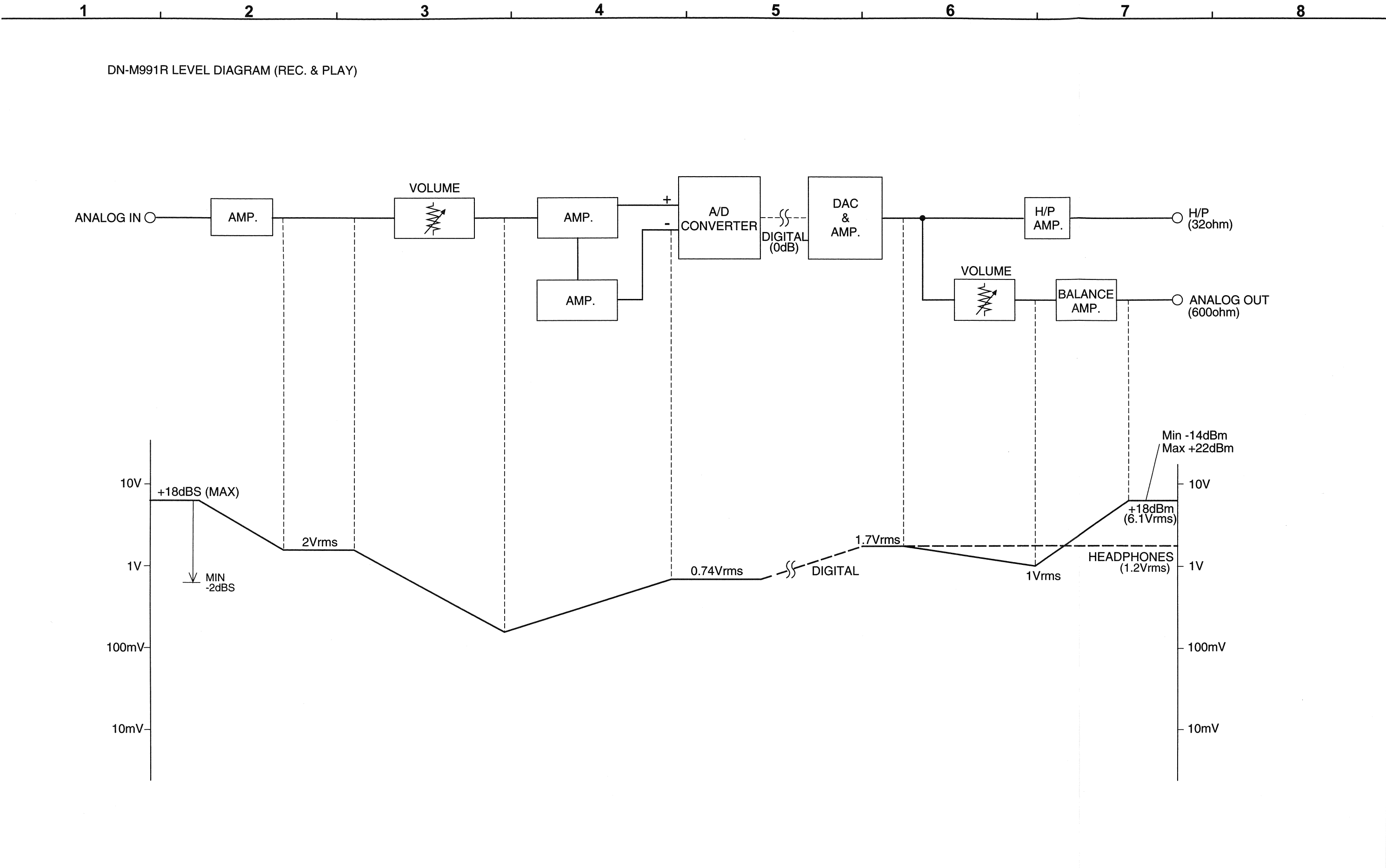


Pickup Ass'y

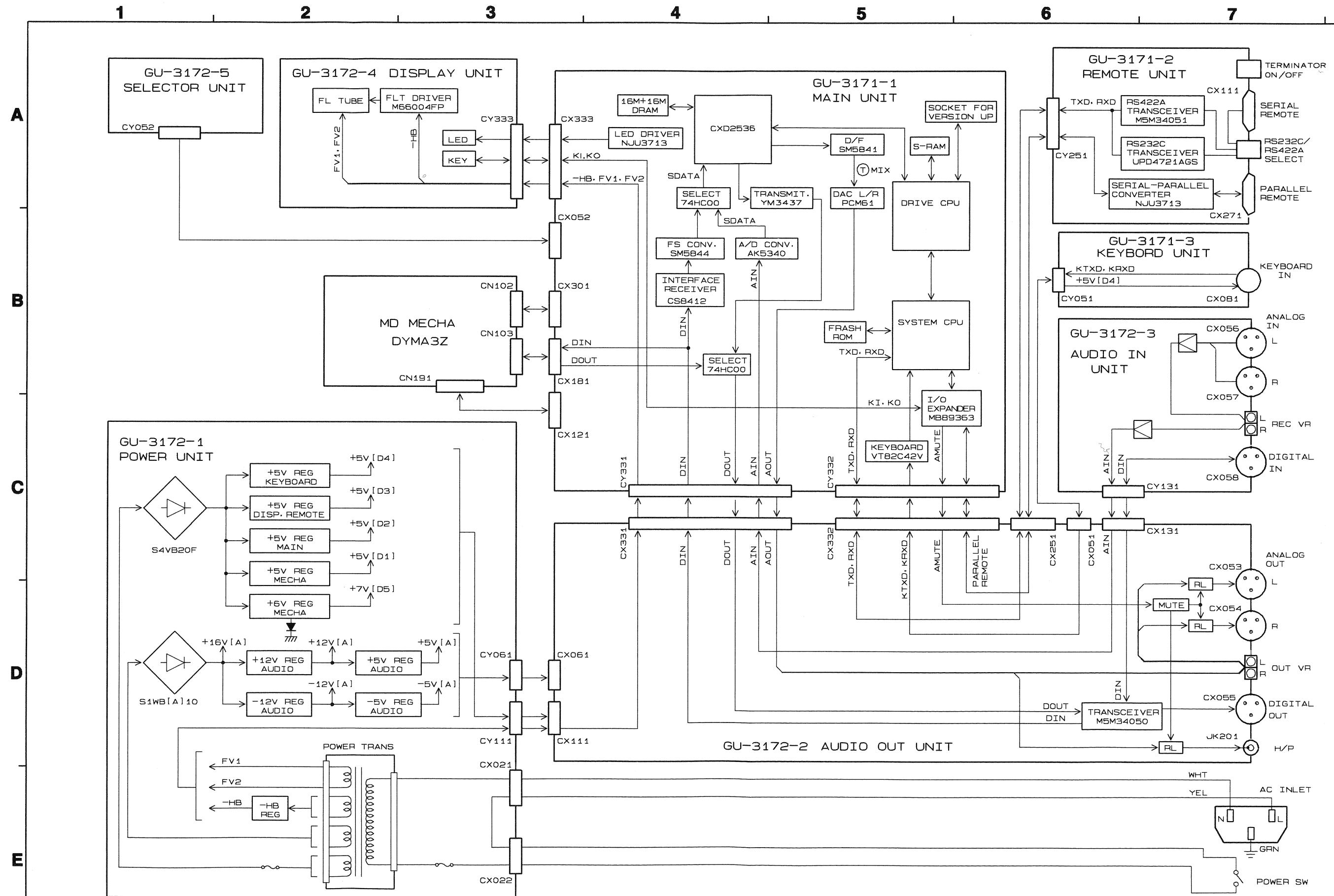
- (1) Remove 3 gears (A) (B) (C).
- (2) Remove 3 screws (8) and (9).
- (3) Release 3 hooks from the Rear Guide, then detach the Pickup Ass'y.
- (4) Release FPC-FFC after short-circuiting the short land on the Pickup Ass'y



LEVEL DIAGRAM



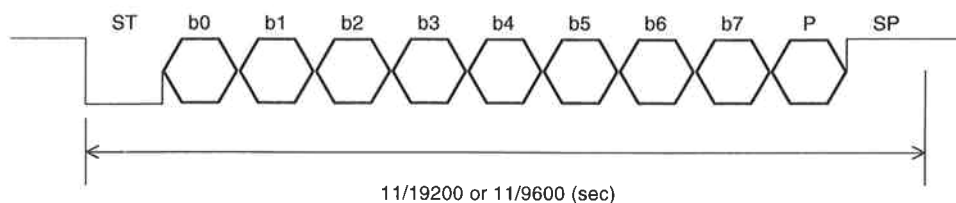
BLOCK DIAGRAM



SOFTWARE SPECIFICATIONS

1. Serial Data Transfer Format

- (1) Data transfer mode : Start-stop synchronization
- (2) Start bit (ST) : 1 bit
- (3) Data bit (b0 ~ b7) : 8 bit
- (4) Parity (P) : Even parity
- (5) Stop bit (SP) : 1 bit
- (6) Transfer rate : 19200 or 9600 bps
- (7) Signal level : RS-232C or RS-422A
- (8) Transmission procedure : Non-procedural



2. Data Communication Protocol

As the DN-M991R employs half duplex communications, follow the procedure below to send commands or receive answers.

Basic Procedure

- (1) The host sends a command (CMD), parameter (PAR) to the DN-M991R.
- (2) The command sent host issues a next command, after receiving the answer without fail from the DN-M991R.
- (3) The host analyzes status and data of the answer returned, so decide whether the command has been executed correctly or not.
- (4) To the command requesting some operations, the DN-M991R returns either "A" (0X41) accepted the command, or "I" (0X49) not accepted. After that, judge whether the operation has been completed or not using any commands (status request command, etc.) from the host.
- (5) The necessary time from the command sending completion to the answer return start is made by the command discriminating/processing and answer data generating times.
- (6) The DN-M991R returns NAK (0X15) when receiving a communication error (each error of over-run, framing, and parity) or an input other than the command.
- (7) In case of sending the command of several bytes from the host, set the delay time between the bytes to less than 40msec. NAK (0X15) is returned and becomes waiting status if 40msec exceeds. If an unspecified command code or error is detected prior to the proper command code or parameter while receiving, no responding process is made until receiving the correct command code.
- (8) When in command parameter error, "I" (0X49) is returned.

For example, in case of time code, any other conditions except the following exhibit parameter errors.

Minute \geq 199

59 \geq Second \geq 00

74 \geq Frame/sec \geq 00

59 \geq Sound group time \geq 00

3. Command List (ASCII Code is used to the commands)

Code	Command	Parameter	Description																																																																																																		
A	Scan	1 byte, SCAN mode *(1)	Performs the manual search (scan) with the selected direction and speed.																																																																																																		
	(1)	<table><tr><th>b 7</th><th>b 6</th><th>b 5</th><th>b 4</th><th>b 3</th><th>b 2</th><th>b 1</th><th>b 0</th></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: Block Repeat</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: Step 1 Speed (About 1 Times)</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: Step 2 Speed (About 2 Times)</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>: Step 3 Speed (About 8 Times)</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>: Step 4 Speed (About 16 Times)</td></tr><tr><td>X</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: Step 5 Speed (About 24 Times)</td></tr><tr><td>X</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>: Step 6 Speed (About 32 Times)</td></tr><tr><td>X</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: Step 7 Speed (About 64 Times)</td></tr><tr><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Forward</td></tr><tr><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Reverse</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	X	0	0	0	0	0	0	0	: Block Repeat	X	0	0	0	0	0	0	1	: Step 1 Speed (About 1 Times)	X	0	0	0	0	0	1	0	: Step 2 Speed (About 2 Times)	X	0	0	0	0	1	0	0	: Step 3 Speed (About 8 Times)	X	0	0	0	1	0	0	0	: Step 4 Speed (About 16 Times)	X	0	0	1	0	0	0	0	: Step 5 Speed (About 24 Times)	X	0	0	1	1	0	0	0	: Step 6 Speed (About 32 Times)	X	0	1	0	0	0	0	0	: Step 7 Speed (About 64 Times)	0	X	X	X	X	X	X	X	: Forward	1	X	X	X	X	X	X	X	: Reverse	
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	X	0	0	0	0	0	0	0	: Block Repeat																																																																																												
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1	X	X	X	X	X	X	X	: Reverse																																																																																													
B	Back Cue	Non	Returns to the playback start position.																																																																																																		
D	End Monitor	Non	Starts the end monitor program.																																																																																																		
E	Send Time	1 Byte, TIME mode *(1)	Requests the time code with the frame/sound group unit.																																																																																																		
	(1)	<table><tr><th>b 7</th><th>b 6</th><th>b 5</th><th>b 4</th><th>b 3</th><th>b 2</th><th>b 1</th><th>b 0</th></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: P-Time (Elapse) Frame Notation</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: P-Time (Remain) Frame Notation</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: A-Time (Elapse) Frame Notation</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>: A-Time (Remain) Frame Notation</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: P-Time (Elapse) SGroup Notation</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: P-Time (Remain) SGroup Notation</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: A-Time (Elapse) SGroup Notation</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>: A-Time (Remain) SGroup Notation</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	: P-Time (Elapse) Frame Notation	0	0	0	0	0	0	0	1	: P-Time (Remain) Frame Notation	0	0	0	0	0	0	1	0	: A-Time (Elapse) Frame Notation	0	0	0	0	0	0	1	1	: A-Time (Remain) Frame Notation	1	0	0	0	0	0	0	0	: P-Time (Elapse) SGroup Notation	1	0	0	0	0	0	0	1	: P-Time (Remain) SGroup Notation	1	0	0	0	0	0	1	0	: A-Time (Elapse) SGroup Notation	1	0	0	0	0	0	1	1	: A-Time (Remain) SGroup Notation																			
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G	Send Old Presetting	Non	Requests the contents and information of presetting																																																																																																		
H	Send Reserved Track	Non	Requests the reserved track in the play mode.																																																																																																		
J	Jump	1 byte, JUMP mode *(1)	Jumps the track up or down with the selected type.																																																																																																		
	(1)	<table><tr><th>b 7</th><th>b 6</th><th>b 5</th><th>b 4</th><th>b 3</th><th>b 2</th><th>b 1</th><th>b 0</th></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: 1 Track Move</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td></td><td></td><td></td><td></td><td>: ~</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>1</td><td>1</td><td>1</td><td>: 15 Tracks Move</td></tr><tr><td>X</td><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Track (fixed Code)</td></tr><tr><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Forward</td></tr><tr><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Reverse</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	X	X	X	X	0	0	0	1	: 1 Track Move	X	X	X	X					: ~	X	X	X	X	1	1	1	1	: 15 Tracks Move	X	1	X	X	X	X	X	X	: Track (fixed Code)	0	X	X	X	X	X	X	X	: Forward	1	X	X	X	X	X	X	X	: Reverse																																					
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	1	X	X	X	X	X	X	X	: Reverse																																																																																												
	K	Frame Cueing	1 byte, Frames *(1)	Moves the selected frames with block repeat form.																																																																																																	
(1)		<table><tr><th>b 7</th><th>b 6</th><th>b 5</th><th>b 4</th><th>b 3</th><th>b 2</th><th>b 1</th><th>b 0</th></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: No Move</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: 1 Frame Move</td></tr><tr><td>X</td><td></td><td></td><td></td><td>~</td><td></td><td></td><td></td><td>: ~</td></tr><tr><td>X</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>: 100 Frames Move</td></tr><tr><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Forward</td></tr><tr><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Reverse</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	X	0	0	0	0	0	0	0	: No Move	X	0	0	0	0	0	0	1	: 1 Frame Move	X				~				: ~	X	1	1	0	0	1	0	0	: 100 Frames Move	0	X	X	X	X	X	X	X	: Forward	1	X	X	X	X	X	X	X	: Reverse																																					
b 7		b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																													
X		0	0	0	0	0	0	0	: No Move																																																																																												
X		0	0	0	0	0	0	1	: 1 Frame Move																																																																																												
X					~				: ~																																																																																												
X		1	1	0	0	1	0	0	: 100 Frames Move																																																																																												
0		X	X	X	X	X	X	X	: Forward																																																																																												
1		X	X	X	X	X	X	X	: Reverse																																																																																												

Code	Command	Parameter	Description								
M	Mode Set	1 byte, Frames mode *(1)	Performs the playback or the record set mode.								
	(1)	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0			
	X	0	0	0	0	0	0	1	: Play Mode (Set : Single/Cancel : Continue)		
	X	0	0	0	0	0	1	0	: Play Repeat in the Playback Mode (Set : Repeat/Cancel : Repeat OFF)		
	X	0	0	0	0	0	1	1	: Time Code Display Mode (Set : Remain/Cancel : Elapse)		
	X	0	0	0	1	0	0	0	: Serial Multi-ID Mode (Set/Cancel) Response treatment not executed		
	X	0	0	0	1	0	1	0	: Pitch (Set : Pitch ON/Cancel : Pitch OFF)		
	X	0	0	0	1	0	1	1	: Auto Level Record Mode (Set : ON/Cancel : OFF)		
	X	0	0	0	1	1	0	0	: Name Display Mode (Set : Trank Name indication/Cancel : Disc Name indication)		
	X	0	0	0	1	1	0	1	: Date Display Mode (Set : Record Date indication/Cancel : Disc Name indication)		
	X	0	0	0	1	1	1	0	: Program (Set : Program ON/Cancel : Program OFF)		
	X	0	0	1	0	0	0	0	: Input Signal 1 mode (Set : Digital signal/Cancel : Analog signal)		
	0	X	X	X	X	X	X	X	: Cancellation		
	1	X	X	X	X	X	X	X	: Set		
	O	Option	2 bytes, Option No. *(1), (2)	Requests the system, disc and track information.							
(1) Information Request object code		<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
b 7		b 6	b 5	b 4	b 3	b 2	b 1	b 0			
0		0	0	0	0	0	0	0	: System (Disc Information)		
0		0	0	0	0	0	0	1	: 1 Track		
									: ~		
1		1	1	1	1	1	1	1	: 255 Track		
(2) Information Request Item Code		<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
b 7		b 6	b 5	b 4	b 3	b 2	b 1	b 0			
0		0	0	0	0	0	0	0	: (0) TOC Information: Frame Notation		
0		0	0	0	0	0	0	1	: (1) TOC Information: SGroup Notation		
0		0	0	0	0	1	0	1	: (2) System Information: Old Format		
0		0	0	0	0	1	1	0	: (3) System 1 Information: New Format		
0		0	0	0	1	0	0	1	: (4) CPU Version Number		
0		0	0	1	0	0	0	0	: (5) Track Playback Time and Track Mode: Frame Notation		
0		0	0	1	0	0	0	1	: (6) Track Playback Time and Track Mode: SGroup Notation		
0		0	1	0	0	0	0	0	: (7) Track Recording Time		
0		0	1	1	0	0	0	0	: (8) Disc Type and Wirte Protect Information		
0		1	0	0	0	0	0	0	: (9) Disc Recording Time : Frame Notation		
0		1	0	0	0	0	0	1	: (10) Disc Recording Time: SGroup Notation		
0		1	1	0	0	0	0	1	: (11) Cue 1 Tally: Frame Notation		
0		1	1	0	0	0	1	0	: (12) Cue 2 Tally: Frame Notation		
0		1	1	0	0	0	1	1	: (13) Cue 3 Tally: Frame Notation		
0		1	1	0	0	1	0	0	: (14) Cue 4 Tally: Frame Notation		
0		1	1	0	0	1	0	1	: (15) Cue 5 Tally: Frame Notation		
0		1	1	0	1	0	0	1	: (16) Cue 1 Tally: SGroup Notation		
0	1	1	0	1	0	1	0	: (17) Cue 2 Tally: SGroup Notation			
0	1	1	0	1	0	1	1	: (18) Cue 3 Tally: SGroup Notation			
0	1	1	0	1	1	0	0	: (19) Cue 4 Tally: SGroup Notation			
0	1	1	0	1	1	0	1	: (20) Cue 5 Tally: SGroup Notation			
1	0	0	0	0	0	0	0	: (21) Category and Model Number: Old Format			
1	0	0	0	0	0	0	1	: (22) Category and Model Number: New Format			
P	Play	Non	Starts the playback.								
Q	Track Search	1 byte	Searches selected Track.								
	Track No. (Binary)										

Code	Command	Parameter	Description																																																																																																																																																																		
R	Reset	Non	Initializes the system.																																																																																																																																																																		
S	Stop	Non	Stops the playback (Servo : OFF).																																																																																																																																																																		
T	Frame Time Search	5 bytes	Performs the time search with frame unit.																																																																																																																																																																		
	(1) Track (Binary) (2) Minute (BCD) (3) Minute (BCD) (4) Second (BCD) (5) Frame (BCD)																																																																																																																																																																				
U	Old Preset Memory	1 byte, OLD PRESET mode *(1)	Changes the setting with the old preset item.																																																																																																																																																																		
	(1) Command Subcode																																																																																																																																																																				
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>0</td><td>0</td><td>: b0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>0</td><td>1</td><td>: b1</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>1</td><td>0</td><td>: b2</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>1</td><td>1</td><td>: b3</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>0</td><td>0</td><td>: b4</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>0</td><td>1</td><td>: b5</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>1</td><td>0</td><td>: b6</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>1</td><td>1</td><td>: b7</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>X</td><td>X</td><td>X</td><td>: Preset Data 1</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>1</td><td>X</td><td>X</td><td>X</td><td>: Preset Data 2</td></tr><tr><td>X</td><td>0</td><td>0</td><td>1</td><td>0</td><td>X</td><td>X</td><td>X</td><td>: Preset Data 3</td></tr><tr><td>X</td><td>0</td><td>0</td><td>1</td><td>1</td><td>X</td><td>X</td><td>X</td><td>: Preset Data 4</td></tr><tr><td>X</td><td>0</td><td>1</td><td>0</td><td>0</td><td>X</td><td>X</td><td>X</td><td>: Preset Data 5</td></tr><tr><td>X</td><td>0</td><td>1</td><td>0</td><td>1</td><td>X</td><td>X</td><td>X</td><td>: Preset Data 6</td></tr><tr><td>X</td><td>0</td><td>1</td><td>1</td><td>0</td><td>X</td><td>X</td><td>X</td><td>: Preset Data 7</td></tr><tr><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Cancellation</td></tr><tr><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Set</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		X	X	X	X	X	0	0	0	: b0	X	X	X	X	X	0	0	1	: b1	X	X	X	X	X	0	1	0	: b2	X	X	X	X	X	0	1	1	: b3	X	X	X	X	X	1	0	0	: b4	X	X	X	X	X	1	0	1	: b5	X	X	X	X	X	1	1	0	: b6	X	X	X	X	X	1	1	1	: b7	X	0	0	0	0	X	X	X	: Preset Data 1	X	0	0	0	1	X	X	X	: Preset Data 2	X	0	0	1	0	X	X	X	: Preset Data 3	X	0	0	1	1	X	X	X	: Preset Data 4	X	0	1	0	0	X	X	X	: Preset Data 5	X	0	1	0	1	X	X	X	: Preset Data 6	X	0	1	1	0	X	X	X	: Preset Data 7	0	X	X	X	X	X	X	X	: Cancellation	1	X	X	X	X	X	X	X	: Set
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																																																																													
	X	X	X	X	X	0	0	0	: b0																																																																																																																																																												
	X	X	X	X	X	0	0	1	: b1																																																																																																																																																												
	X	X	X	X	X	0	1	0	: b2																																																																																																																																																												
	X	X	X	X	X	0	1	1	: b3																																																																																																																																																												
	X	X	X	X	X	1	0	0	: b4																																																																																																																																																												
	X	X	X	X	X	1	0	1	: b5																																																																																																																																																												
	X	X	X	X	X	1	1	0	: b6																																																																																																																																																												
	X	X	X	X	X	1	1	1	: b7																																																																																																																																																												
	X	0	0	0	0	X	X	X	: Preset Data 1																																																																																																																																																												
	X	0	0	0	1	X	X	X	: Preset Data 2																																																																																																																																																												
	X	0	0	1	0	X	X	X	: Preset Data 3																																																																																																																																																												
X	0	0	1	1	X	X	X	: Preset Data 4																																																																																																																																																													
X	0	1	0	0	X	X	X	: Preset Data 5																																																																																																																																																													
X	0	1	0	1	X	X	X	: Preset Data 6																																																																																																																																																													
X	0	1	1	0	X	X	X	: Preset Data 7																																																																																																																																																													
0	X	X	X	X	X	X	X	: Cancellation																																																																																																																																																													
1	X	X	X	X	X	X	X	: Set																																																																																																																																																													
Pitch	1 byte, Pitch *(1)	Performs the set pitch function.																																																																																																																																																																			
(1) Pitch Code																																																																																																																																																																					
<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: Pitch ±0</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: Pitch 0.1</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: Pitch 0.2</td></tr><tr><td>X</td><td></td><td></td><td></td><td>~</td><td></td><td></td><td></td><td>: ~</td></tr><tr><td>X</td><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>: Pitch 8.0</td></tr><tr><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: + Pitch</td></tr><tr><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: - Pitch</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	0	0	: Pitch ±0	X	0	0	0	0	0	0	1	: Pitch 0.1	X	0	0	0	0	0	1	0	: Pitch 0.2	X				~				: ~	X	1	0	1	0	0	1	1	: Pitch 8.0	0	X	X	X	X	X	X	X	: + Pitch	1	X	X	X	X	X	X	X	: - Pitch																																																																																											
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																																																																														
0	0	0	0	0	0	0	0	: Pitch ±0																																																																																																																																																													
X	0	0	0	0	0	0	1	: Pitch 0.1																																																																																																																																																													
X	0	0	0	0	0	1	0	: Pitch 0.2																																																																																																																																																													
X				~				: ~																																																																																																																																																													
X	1	0	1	0	0	1	1	: Pitch 8.0																																																																																																																																																													
0	X	X	X	X	X	X	X	: + Pitch																																																																																																																																																													
1	X	X	X	X	X	X	X	: - Pitch																																																																																																																																																													
W	Pause	Non	Pauses the playback.																																																																																																																																																																		
X	Send Old Status	Non	Requests the system status (1 byte Answer).																																																																																																																																																																		
Y	Standby	Non	Performs the standby operation.																																																																																																																																																																		
Z	Send Set Track	2 bytes, *(1), (2)	Requests the track number (program/hot start).																																																																																																																																																																		
	(1) Object Code																																																																																																																																																																				
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: Program</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: Hot Start</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	0	1	: Program	0	0	0	0	0	0	1	0	: Hot Start																																																																																																																																							
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																																																																													
0	0	0	0	0	0	0	1	: Program																																																																																																																																																													
0	0	0	0	0	0	1	0	: Hot Start																																																																																																																																																													
(2) Program No. (1~25)/Hot Key No. (1~10) (Binary)																																																																																																																																																																					

Code	Command	Parameter	Description																																								
a	Name	2 Byte, *(1), (2)	Requests the disc and track name.																																								
	(1) Information Requesting Object Code																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr><tr><td colspan="7"></td><td>~</td></tr><tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1								~	1	1	1	1	1	1	1	1
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																			
	0	0	0	0	0	0	0	0																																			
	0	0	0	0	0	0	0	1																																			
								~																																			
	1	1	1	1	1	1	1	1																																			
	: Requests the disc name																																										
	: 1 Track																																										
: ~																																											
: 255 Track																																											
(2) Starting Byte for Request Data (Binary)																																											
b	Edit	10 Bytes, *(1) ~ (10)	Performs the editing operation for disc or track.																																								
	(1) Deleting the Disc or Track																																										
	(1)-(1) Editing the Subcode																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	1																								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																			
	0	0	0	0	0	0	0	1																																			
	(1)-(2) Reserved																																										
	(1)-(3) Reserved																																										
	(1)-(4) Reserved																																										
	(1)-(5) Reserved																																										
	(1)-(6) Reserved																																										
	(1)-(7) Reserved																																										
	(1)-(8) Reserved																																										
	(1)-(9) Reserved																																										
	(1)-(10) Deleting the Object Code																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr><tr><td colspan="7"></td><td>~</td></tr><tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1								~	1	1	1	1	1	1	1	1
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																			
	0	0	0	0	0	0	0	0																																			
	0	0	0	0	0	0	0	1																																			
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	1	1	1	1	1	1	1	1																																			
	: Deletes the disc																																										
	: 1 Track																																										
	: ~																																										
	: 255 Tracks																																										
	(2) Combining the Track																																										
	(2)-(1) Editing the Subcode																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	1	0																								
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(2)-(10) Reserved																																											
(3) Moving the Track																																											
(3)-(1) Editing the Subcode																																											
<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	1	1																									
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(3)-(9) Reserved																																											
(3)-(10) Track number (Binary) After Moving																																											

Code	Command	Parameter	Description																																																																							
b	(4) Dividing the Track																																																																									
	(4)-(1) Editing the Subcode	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	1	0	0																																																								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																		
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	(4)-(2) Reserved																																																																									
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	(4)-(5) Reserved																																																																									
	(4)-(6) Track number (Binary)																																																																									
	(4)-(7) Dividing Position Min. × 100 (BCD)																																																																									
	(4)-(8) Dividing position Min. × 10 (BCD), Dividing position Min. × 1 (BCD)																																																																									
	(4)-(9) Dividing position Sec. × 10 (BCD), Dividing position Sec. × 1 (BCD)																																																																									
	(4)-(10) Dividing position SGroup × 10 (BCD), Dividing position SGroup × 10 (BCD)																																																																									
	(5) Writing																																																																									
	(5)-(1) Editing the Subcode	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	1	0	1																																																								
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	(5)-(9) Reserved																																																																									
	(5)-(10) Pitch Code	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: Pitch ±0</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: Pitch 0.1</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: Pitch 0.2</td></tr><tr><td>X</td><td></td><td></td><td></td><td>~</td><td></td><td></td><td></td><td>: ~</td></tr><tr><td>X</td><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>: Pitch 8.0</td></tr><tr><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: +Pitch</td></tr><tr><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: -Pitch</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	: Pitch ±0	X	0	0	0	0	0	0	1	: Pitch 0.1	X	0	0	0	0	0	1	0	: Pitch 0.2	X				~				: ~	X	1	0	1	0	0	1	1	: Pitch 8.0	0	X	X	X	X	X	X	X	: +Pitch	1	X	X	X	X	X	X	X	: -Pitch	
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																		
	0	0	0	0	0	0	0	0	: Pitch ±0																																																																	
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	X				~				: ~																																																																	
	X	1	0	1	0	0	1	1	: Pitch 8.0																																																																	
	0	X	X	X	X	X	X	X	: +Pitch																																																																	
1	X	X	X	X	X	X	X	: -Pitch																																																																		
(6) Undo/Redo/First																																																																										
(6)-(1) Editing the Subcode	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	1	0	1	0																																																									
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(6)-(8) Reserved																																																																										
(6)-(9) Reserved																																																																										
(6)-(10) Setting the Code	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: Undo Request</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: Redo Request</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>: First Request</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	1	: Undo Request	0	0	0	0	0	0	1	0	: Redo Request	0	0	0	0	0	0	1	1	: First Request																																						
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																			
0	0	0	0	0	0	0	1	: Undo Request																																																																		
0	0	0	0	0	0	1	0	: Redo Request																																																																		
0	0	0	0	0	0	1	1	: First Request																																																																		
c	Change Hot Track	2 Bytes	Changes the hot track.																																																																							
	(1) Track No. (Binary) (2) Buffer No. for Hot Start (Binary)																																																																									
d	Data of Hot Track	Non	Requests the track number of the hot track.																																																																							

Code	Command	Parameter	Description																																																																								
e	Writing Name	12 Bytes, *(1) ~ (12)	Writes the disc and track name.																																																																								
	(1) Writing the Object Code																																																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr><tr><td colspan="8">: Disc Name</td></tr><tr><td colspan="8">: 1 Track</td></tr><tr><td colspan="8">: ~</td></tr><tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr><tr><td colspan="8">: 255 Tracks</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	: Disc Name								: 1 Track								: ~								1	1	1	1	1	1	1	1	: 255 Tracks															
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																			
	0	0	0	0	0	0	0	0																																																																			
	0	0	0	0	0	0	0	1																																																																			
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	: 255 Tracks																																																																										
	(2) Start byte for writing (Binary)																																																																										
	(3) Data 1 code (ASCII)																																																																										
	(4) Data 2 code (ASCII)																																																																										
	(5) Data 3 code (ASCII)																																																																										
(6) Data 4 code (ASCII)																																																																											
(7) Data 5 code (ASCII)																																																																											
(8) Data 6 code (ASCII)																																																																											
(9) Data 7 code (ASCII)																																																																											
(10) Data 8 code (ASCII)																																																																											
(11) Data 9 code (ASCII)																																																																											
(12) Data 10 code (ASCII)																																																																											
f	Recording Pause	Non	Requests the record pause operation.																																																																								
g	POS code	Non	Requests POS code.																																																																								
h	ISRC code	1 byte, *(1)	Requests ISRC code																																																																								
	(1) Track Number (Binary)																																																																										
i	Contents of Preset1	1 byte, *(1)	Requests the preset information and contents.																																																																								
	(1) Request Data Code																																																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td colspan="8">: (1) Requests area No. of the used preset</td></tr><tr><td colspan="8">: (2) Requests the data of the preset area No. 1.</td></tr><tr><td colspan="8">: (3) Requests the data of the preset area No. 2.</td></tr><tr><td colspan="8">: (4) Requests the data of the preset area No. 3.</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	: (1) Requests area No. of the used preset								: (2) Requests the data of the preset area No. 1.								: (3) Requests the data of the preset area No. 2.								: (4) Requests the data of the preset area No. 3.							
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																			
	0	0	0	0	0	0	0	0																																																																			
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	: (1) Requests area No. of the used preset																																																																										
	: (2) Requests the data of the preset area No. 1.																																																																										
: (3) Requests the data of the preset area No. 2.																																																																											
: (4) Requests the data of the preset area No. 3.																																																																											
j	Recording	Non	Requests the recording operation.																																																																								
k	Track Increment	Non	Requests the track increment operation in the recording.																																																																								
l	Loading Hot Tracks	Non	Requests the data loading operation for the hot track.																																																																								
m	Setting Tally	5 byte, *(1) ~ (5)	Requests the cue tally writing operation.																																																																								
	(1) Setting Cue Tally																																																																										
	(1)-(1) Cue Tally Code																																																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td colspan="8">: Frame Notation</td></tr><tr><td colspan="8">: SGroup Notation</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	: Frame Notation								: SGroup Notation																																							
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																			
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	: SGroup Notation																																																																										
	(1)-(2) Min. × 100 (BCD)																																																																										
	(1)-(3) Min. × 10 (BCD), Min. × 1 (BCD)																																																																										
	(1)-(4) Sec. × 10 (BCD), Sec. × 1 (BCD)																																																																										
	(1)-(5) Frame/SGroup × 10 (BCD), Frame/SGroup × 1 (BCD)																																																																										
	(2) Deleting Cue Tally																																																																										
	(2)-(1) Cue Tally code																																																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0																																																								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																			
	0	0	0	0	0	0	0	0																																																																			
(2)-(2) Tally Number (Binary: 1~5)																																																																											
(2)-(3) Reserved																																																																											
(2)-(4) Reserved																																																																											
(2)-(5) Reserved																																																																											

Code	Command	Parameter	Description																																																															
n	Preset Memory	7 bytes, *(1) ~ (7)	Performs the set preset.																																																															
	(1) Preset Setting Code																																																																	
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: (1) Changes the using area*</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: (2) Changes the set of the preset area No. 1.</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: (3) Changes the set of the preset area No. 2.</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>: (4) Changes the set of the preset area No. 3.</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>: (5) Requests the write function to the set preset EEPROM*</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td><td>: (6) Requests the write function to the set program EEPROM*</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	0	0	: (1) Changes the using area*	0	0	0	0	0	0	0	1	: (2) Changes the set of the preset area No. 1.	0	0	0	0	0	0	1	0	: (3) Changes the set of the preset area No. 2.	0	0	0	0	0	0	1	1	: (4) Changes the set of the preset area No. 3.	0	0	0	0	0	1	0	0	: (5) Requests the write function to the set preset EEPROM*	0	0	0	0	0	1	0	1	: (6) Requests the write function to the set program EEPROM*
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																										
	0	0	0	0	0	0	0	0	: (1) Changes the using area*																																																									
	0	0	0	0	0	0	0	1	: (2) Changes the set of the preset area No. 1.																																																									
	0	0	0	0	0	0	1	0	: (3) Changes the set of the preset area No. 2.																																																									
	0	0	0	0	0	0	1	1	: (4) Changes the set of the preset area No. 3.																																																									
	0	0	0	0	0	1	0	0	: (5) Requests the write function to the set preset EEPROM*																																																									
	0	0	0	0	0	1	0	1	: (6) Requests the write function to the set program EEPROM*																																																									
	(2) Preset code 1																																																																	
	(3) Preset code 2																																																																	
	(4) Preset code 3																																																																	
	(5) Preset code 4																																																																	
	(6) Preset code 5																																																																	
(7) Preset code 6																																																																		
* Changes the using area/Requests the write function to EEPROM																																																																		
(1) Preset setting code																																																																		
(2) Using area/Writing area (Binary: 1~3)																																																																		
(3)~(7) Reserved																																																																		
o	SGroup Time Search	5 byte, *(1) ~ (5)	Requests the current track time search with the sound group unit.																																																															
	(1) Track Number (Binary)																																																																	
	(2) Minute (BCD)																																																																	
	(3) Minute (BCD)																																																																	
	(4) Second (BCD)																																																																	
	(5) SGroup (BCD)																																																																	
p	Hot Start	1 byte, *(1)	Requests the hot start operation with the specified buffer number.																																																															
	(1) Hot Start Number 1~10 (Binary)																																																																	
q	Program	25 bytes, *(1) ~ (25)	Performs the set program.																																																															
	(1) Track No. of 1 step (Binary)																																																																	
	(2) Track No. of 2 step (Binary)																																																																	
	(3) Track No. of 3 step (Binary)																																																																	
	(4) Track No. of 4 step (Binary)																																																																	
	(5) Track No. of 5 step (Binary)																																																																	
	(6) Track No. of 6 step (Binary)																																																																	
	(7) Track No. of 7 step (Binary)																																																																	
	(8) Track No. of 8 step (Binary)																																																																	
	(9) Track No. of 9 step (Binary)																																																																	
	(10) Track No. of 10 step (Binary)																																																																	
	(11) Track No. of 11 step (Binary)																																																																	
	(12) Track No. of 12 step (Binary)																																																																	
	(13) Track No. of 13 step (Binary)																																																																	
	(14) Track No. of 14 step (Binary)																																																																	
	(15) Track No. of 15 step (Binary)																																																																	
	(16) Track No. of 16 step (Binary)																																																																	
	(17) Track No. of 17 step (Binary)																																																																	
	(18) Track No. of 18 step (Binary)																																																																	
	(19) Track No. of 19 step (Binary)																																																																	
	(20) Track No. of 20 step (Binary)																																																																	
	(21) Track No. of 21 step (Binary)																																																																	
	(22) Track No. of 22 step (Binary)																																																																	
	(23) Track No. of 23 step (Binary)																																																																	
	(24) Track No. of 24 step (Binary)																																																																	
	(25) Track No. of 25 step (Binary)																																																																	

Code	Command	Parameter	Description																																																														
r	Reading UTOC	Non	Requests the UTOC reading operation.																																																														
s	Hot start Stop	Non	Requests the hot start stop operation.																																																														
t	Editing Work Status	Non	Requests the editing work status.																																																														
u	Repeat	1 byte *(1)	Performs the repeat program.																																																														
	(1) Operation Code																																																																
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: Repeat OFF</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: Repeat ON</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	0	0	: Repeat OFF	0	0	0	0	0	0	0	1	: Repeat ON																																			
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																										
0	0	0	0	0	0	0	0	: Repeat OFF																																																									
0	0	0	0	0	0	0	1	: Repeat ON																																																									
v	Send Pitch	Non	Requests the set pitch state.																																																														
w	Writing UTOC	Non	Requests the UTOC writing operation.																																																														
x	Send Status	Non	Requests the system status with 2 bytes answer.																																																														
y	Canceling Recording	Non	Requests the cancelling recording operation.																																																														
z	Canceling Operation	1 byte, *(1)	Cancels the edit, program or preset mode.																																																														
	(1) Operation Code																																																																
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: Edit mode</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: Program input mode</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>: Preset mode</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>: Hot start mode</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	0	1	: Edit mode	0	0	0	0	0	0	1	0	: Program input mode	0	0	0	0	0	1	0	0	: Preset mode	0	0	0	0	1	0	0	0	: Hot start mode																	
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																										
0	0	0	0	0	0	0	1	: Edit mode																																																									
0	0	0	0	0	0	1	0	: Program input mode																																																									
0	0	0	0	0	1	0	0	: Preset mode																																																									
0	0	0	0	1	0	0	0	: Hot start mode																																																									
:	Eeprom Work Status	Non	Requests the EEPROM access status.																																																														
;	SGroup Cueing	1 byte, *(1)	Moves to the specified sound group number and performs the block repeat operation.																																																														
	(1) Specifying the Code for Moving the Specified position																																																																
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: No move</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: 1 Sound group move</td></tr><tr><td>X</td><td></td><td></td><td></td><td>~</td><td></td><td></td><td></td><td>: ~</td></tr><tr><td>X</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>: 127 sound groups move</td></tr><tr><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Forward</td></tr><tr><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Reverse</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		X	0	0	0	0	0	0	0	: No move	X	0	0	0	0	0	0	1	: 1 Sound group move	X				~				: ~	X	1	1	1	1	1	1	1	: 127 sound groups move	0	X	X	X	X	X	X	X	: Forward	1	X	X	X	X	X	X	X
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																										
X	0	0	0	0	0	0	0	: No move																																																									
X	0	0	0	0	0	0	1	: 1 Sound group move																																																									
X				~				: ~																																																									
X	1	1	1	1	1	1	1	: 127 sound groups move																																																									
0	X	X	X	X	X	X	X	: Forward																																																									
1	X	X	X	X	X	X	X	: Reverse																																																									
<	Contents of Preset2	1 byte	Requests preset bit map 2 answer.																																																														
	(1) Request Data Code																																																																
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: (1) Requests the data of preset area No. 1</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: (2) Requests the data of preset area No. 2</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>: (3) Requests the data of preset area No. 3</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	0	1	: (1) Requests the data of preset area No. 1	0	0	0	0	0	0	1	0	: (2) Requests the data of preset area No. 2	0	0	0	0	0	0	1	1	: (3) Requests the data of preset area No. 3																										
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																										
0	0	0	0	0	0	0	1	: (1) Requests the data of preset area No. 1																																																									
0	0	0	0	0	0	1	0	: (2) Requests the data of preset area No. 2																																																									
0	0	0	0	0	0	1	1	: (3) Requests the data of preset area No. 3																																																									

Code	Command	Parameter	Description																																																								
	Preset 2 Memory	7 bytes	Sets preset 2 memory.																																																								
>	(1) Preset2 Setting Code																																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																			
	0	0	0	0	0	0	0	0																																																			
	0	0	0	0	0	0	0	1																																																			
	0	0	0	0	0	0	1	0																																																			
	0	0	0	0	0	0	1	1																																																			
	0	0	0	0	0	1	0	0																																																			
	0	0	0	0	0	1	0	1																																																			
	: (1) Changes the using area*																																																										
: (2) Changes the set of the preset area No.1																																																											
: (3) Changes the set of the preset area No.2																																																											
: (4) Changes the set of the preset area No.3																																																											
: (5) Requests the write function to the preset2 EEPROM*																																																											
: (6) Requests the function to the program setting EEPROM*																																																											
(2) Preset Code7																																																											
(3) Preset Code8																																																											
(4) Preset Code9																																																											
(5)~(7) Reserved																																																											
* Changes the using area/Requests the write function to EEPROM																																																											
(1) Preset 2 setting code																																																											
(2) Using area/Writing area (Binary: 1~3)																																																											
(5)~(7) Reserved																																																											

To control the player while attaching the ID (Player Number);

- 1) Set the Mode at first. [M]-[10001000]
After the above, the player accepts commands with ID.
- 2) Attach and transfer the ID (1 byte) subsequent to the control command.

Example: With ID [COMMAND]-[ID]-[DATA]

Without ID[COMMAND]-[DATA]

- 3) When the ID is [11111111], all players accept the command.

4. Status and Answer List

Code	Status	Parameter	Description																																																																																																							
A	Acknowledge	Non	Receipt of Command (Answer for A, B, D, F, J, K, M, P, Q, S, T, U, V, W, Y, b, c, e, f, j, k, l, m, n, o, p, q, r, s, u, w, y, z, :, >, Commands).																																																																																																							
B	Standby	Non or 1 byte	During standby (Answer for X and x commands).																																																																																																							
	Track No. (Binary)																																																																																																									
C	End Monitor	Non or 1 byte	During End Monitor (Answer for X and x commands).																																																																																																							
	Track No. (Binary)																																																																																																									
D	TOC read	Non or 1 byte	During TOC read (Answer for X and x commands).																																																																																																							
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table> : Servo on and TOC read			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	1																																																																																							
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																			
0	0	0	0	0	0	0	1																																																																																																			
E	Error	1 byte *(1)	Transmits an error code. (Answer for X and x commands)																																																																																																							
	Error Code																																																																																																									
F	Stop	1 byte 00h (Fixed)	Answer for X and X commands.																																																																																																							
G	Old Presetting	7 bytes *(1) ~ (7)	Answer for old presetting command.																																																																																																							
	(1) Preset Code 1 <table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>X</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>0</td><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>0</td><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>1</td><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>1</td><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr><tr><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	X	X	X	X	X	X	X	0	X	X	X	X	X	X	X	1	X	X	X	X	X	X	1	X	X	X	X	X	X	0	X	X	X	X	X	X	X	1	X	X	X	X	X	X	1	X	X	X	X	X	0	0	X	X	X	X	X	X	0	1	X	X	X	X	X	X	1	0	X	X	X	X	X	X	1	1	X	X	X	X	X	1	X	X	X	X	X	X	1	X	X	X	X	X	X
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																			
X	X	X	X	X	X	X	0																																																																																																			
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X	X	X	X	1	X	X	X																																																																																																			
X	X	0	0	X	X	X	X																																																																																																			
X	X	0	1	X	X	X	X																																																																																																			
X	X	1	0	X	X	X	X																																																																																																			
X	X	1	1	X	X	X	X																																																																																																			
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1	X	X	X	X	X	X	X																																																																																																			
G	(2) Preset Code 2 <table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>0</td><td>0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>0</td><td>1</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>1</td><td>0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>1</td><td>1</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>0</td><td>0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>0</td><td>1</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>1</td><td>0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>1</td><td>1</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr><tr><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	X	X	X	X	X	0	0	0	X	X	X	X	X	0	0	1	X	X	X	X	X	0	1	0	X	X	X	X	X	1	1	1	X	X	X	X	X	1	0	0	X	X	X	X	X	1	0	1	X	X	X	X	X	1	1	0	X	X	X	X	X	1	1	1	X	X	X	X	0	X	X	X	X	0	X	X	X	X	X	X	1	X	X	X	X	X	X	X							
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																		
X	X	X	X	X	0	0	0																																																																																																			
X	X	X	X	X	0	0	1																																																																																																			
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Code	Status	Parameter	Description						
G	(4) Preset Code 4								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	X	0	0	0	: End Mon OFF
	X	X	X	X	X	0	0	1	: End Mon 5 sec
	X	X	X	X	X	0	1	0	: End Mon 10 sec
	X	X	X	X	X	0	1	1	: End Mon 15 sec
	X	X	X	X	X	1	0	0	: End Mon 20 sec
	X	X	X	X	X	1	0	1	: End Mon 25 sec
	X	X	X	X	X	1	1	0	: End Mon 30 sec
	X	X	X	X	X	1	1	1	: End Mon 35 sec
	X	X	X	0	0	X	X	X	: Stdbby 0 ms (Fixed)
	X	0	0	X	X	X	X	X	: Delay 0 ms
	X	0	1	X	X	X	X	X	: Delay 100 ms
	X	1	0	X	X	X	X	X	: Delay 200 ms
	X	1	1	X	X	X	X	X	: Delay 300 ms
	1	X	X	X	X	X	X	X	: bps (0: 9600bps / 1: 19200bps)
	(5) Preset Code 5								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	X	X	0	0	: Tally E.O.M.
	X	X	X	X	X	X	0	1	: Tally End Cue
	X	X	X	X	X	X	1	0	: Tally Cue
	X	X	X	X	0	0	X	X	: End Cue 0 sec
	X	X	X	X	0	1	X	X	: End Cue -1 sec
	X	X	X	X	1	0	X	X	: End Cue -2 sec
	X	X	X	X	1	1	X	X	: End Cue -3 sec
	X	X	0	0	X	X	X	X	: Finish Stop
	X	X	0	1	X	X	X	X	: Finish Recue
	X	X	1	0	X	X	X	X	: Finish Next
	X	X	1	1	X	X	X	X	: Finish Repeat
	X	1	X	X	X	X	X	X	: Flash ON (0: OFF/1: ON)
	1	X	X	X	X	X	X	X	: Frame Disp ON (0: OFF/1: ON)
	(6) Preset Code 6								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	0	X	X	X	: Eject lock OFF (Fixed)
	X	X	X	1	X	X	X	X	: Pre UTOC (0: OFF / 1: ON)
	X	X	1	X	X	X	X	X	: Serial ENA (Fixed)
	0	0	X	X	X	X	X	X	: Disp Name (Track/Disc)
	0	1	X	X	X	X	X	X	: Disp Date
	(7) Preset Code 7								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	0	0	0	0	: Player ID 0
	X	X	X	X					: ~
	X	X	X	X	1	1	1	1	: Player ID 15
	X	X	X	0	X	X	X	X	: Player OFF
	X	X	X	1	X	X	X	X	: Player ON
	0	0	0	X	X	X	X	X	: Reserved
	0	0	1	X	X	X	X	X	: Inc Level -66 dB
	0	1	0	X	X	X	X	X	: Inc Level -60 dB
	0	1	1	X	X	X	X	X	: Inc Level -54 dB
	1	0	0	X	X	X	X	X	: Inc Level -48 dB
	1	0	1	X	X	X	X	X	: Inc Level -42 dB
	1	1	0	X	X	X	X	X	: Inc Level -36 dB
H	Reserved Track		1 byte, *(1)		Answer for H command				
	(1) Track Number (Binary)								
I	Invalid Command		Non		Invalid command. (Answer for A, B, D, F, J, K, M, P, Q, S, T, U, V, W, Y, b, c, e, f, j, k, l, m, n, o, p, q, r, s, u, w, y, z, ;, >, commands).				

Code	Status	Parameter	Description																																																																								
	Option	10 bytes	Answer for the Option Command.																																																																								
	(0) TOC Information (Frame) / (1) TOC information (SGroup)																																																																										
	(0), (1)-(1) First track number (Binary)																																																																										
	(0), (1)-(2) End track number (Binary)																																																																										
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	(0), (1)-(4) Total Time, Minute (BCD)																																																																										
	(0), (1)-(5) Total Time, Sec. (BCD)																																																																										
	(0), (1)-(6) Total Time, Frame (BCD)																																																																										
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	(2)-(2) Reserved																																																																										
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Code	Status	Parameter	Description							
O	(3)-(5)	System Information 5 Code								
		b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
		X	X	X	X	X	X	X	1	: FL Tube "TOC" lights (0: Blink/Unlight)
		X	X	X	X	X	X	1	X	: LED "EDIT" lights (0: Blink/Unlight)
		X	X	X	X	X	1	X	X	: FL Tube "CUE" lights (0: Blink/Unlight)
		X	X	X	X	1	X	X	X	: FL Tube "DISC" lights (0: Blink/Unlight)
		X	X	X	1	X	X	X	X	: FL Tube "TRACK" lights (0: Blink/Unlight)
		X	X	1	X	X	X	X	X	: FL Tube "DATE" lights (0: Blink/Unlight)
		X	1	X	X	X	X	X	X	: FL Tube "DIGITAL IN" lights (0: Blink/Unlight)
	(3)-(6)	System Information 6 Code								
		b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
		X	X	X	X	X	X	X	1	: FL Tube "TOC" blinks (0: Light/Unlight)
		X	X	X	X	X	X	1	X	: FL Tube "EDIT" blinks (0: Light/Unlight)
		X	X	X	X	X	1	X	X	: FL Tube "CUE" blinks (0: Light/Unlight)
		X	X	X	X	1	X	X	X	: FL Tube "DISC NAME" blinks (0: Light/Unlight)
		X	X	X	1	X	X	X	X	: FL Tube "TRACK NAME" blinks (0: Light/Unlight)
		X	X	1	X	X	X	X	X	: FL Tube "DATE" blinks (0: Light/Unlight)
		X	1	X	X	X	X	X	X	: FL Tube "DIGITAL IN" blinks (0: Light/Unlight)
	(4)	CPU Version Number								
	(4)-(1)	Reserved								
	(4)-(2)	Reserved								
	(4)-(3)	System CPU number (BCD)								
	(4)-(4)	System CPU number (BCD)								
	(4)-(5)	Drive CPU number (BCD)								
	(4)-(6)	Drive CPU number (BCD)								
	(5)	Track Playback Time and Track Mode (Frame) / (6) Track Playback Time and Track Mode (SGroup)								
	(5), (6)-(1)	Reserved								
	(5), (6)-(2)	Minute (BCD)								
	(5), (6)-(3)	Minute (BCD)								
	(5), (6)-(4)	Sec. (BCD)								
	(5), (6)-(5)	Frame/SGroup (BCD)								
	(5), (6)-(6)	Track Mode Code								
		b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
		0	X	X	X	0	1	X	X	: Write protected
		1	X	X	X	0	1	X	X	: Write permitted
		X	0	X	X	0	1	X	X	: Copy right protected
		X	1	X	X	0	1	X	X	: Not protected
		X	X	0	X	0	1	X	X	: Original
		X	X	1	X	0	1	X	X	: 1st or higher generation
		X	X	X	0	0	1	X	X	: Audio
		X	X	X	1	0	1	X	X	: Reserve
		X	X	X	X	0	1	0	X	: Mono
		X	X	X	X	0	1	1	X	: Stereo
		X	X	X	X	0	1	X	0	: Emphasis off
		X	X	X	X	0	1	X	1	: Emphasis 50/15 μs
	(7)	Track Recording Data								
	(7)-(1)	Year (BCD)								
	(7)-(2)	Month (BCD)								
	(7)-(3)	Date (BCD)								
	(7)-(4)	Hour (BCD)								
	(7)-(5)	Minute (BCD)								
	(7)-(6)	Second (BCD)								

Code	Status	Parameter	Description																																								
O		(8) Disc Write Protect Information																																									
		(8)-(1) Reserved																																									
		(8)-(2) Reserved																																									
		(8)-(3) Reserved																																									
		(8)-(4) Reserved																																									
		(8)-(5) Disc Mode 1 Code																																									
		<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	: Write permitted : Write protected (Including no disc)																
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																			
	0	0	0	0	0	0	0	0																																			
	0	0	0	0	0	0	0	1																																			
		(8)-(6) Disc Mode 2 Code																																									
		<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>1</td></tr><tr><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td></tr><tr><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1	0	0	1	1	1	1	1	0	0	0	1	1	1	1	1	1	: No Disc : Prerecorded MD : Recordable MD : Hybrid MD
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																			
	0	0	0	0	0	0	0	0																																			
	0	0	1	1	1	1	0	1																																			
	0	0	1	1	1	1	1	0																																			
	0	0	1	1	1	1	1	1																																			
		(9) Disc Recording Time (Frame) / (10) Disc Recording Time (SGroup)																																									
		(9), (10)-(1) Reserved																																									
		(9), (10)-(2) Reserved																																									
		(9), (10)-(3) Minute (BCD)																																									
		(9), (10)-(4) Minute (BCD)																																									
		(9), (10)-(5) Second (BCD)																																									
		(9), (10)-(6) Frame/SGroup (BCD)																																									
		(11)~(15) Cue 1~5 Tally Time (Frame) / (16)~(20) Cue 1~5 Tally Time (SGroup)																																									
	(11)~(20)-(1) Reserved																																										
	(11)~(20)-(2) Cue tally setting code																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	: No cue tally setting : Cue tally setting																	
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																				
0	0	0	0	0	0	0	0																																				
0	0	0	0	0	0	0	1																																				
	(11)~(20)-(3) Minute (BCD)																																										
	(11)~(20)-(4) Minute (BCD)																																										
	(11)~(20)-(5) Sec. (BCD)																																										
	(11)~(20)-(6) Frame/SGroup X10 (BCD)																																										
	(21) Category and Model Number: Old Format																																										
	(21)-(1) Reserved																																										
	(21)-(2) Reserved																																										
	(21)-(3) Category code 05h (Fixed)																																										
	(21)-(4) Model Number (ASCII Code)																																										
	(21)-(5) Model Number (ASCII Code)																																										
	(21)-(6) Model Number (ASCII Code)																																										
	(22) Category and Model Number: New Format																																										
	(22)-(1) Category code 05h (Fixed)																																										
	(22)-(2) Reserved																																										
	(22)-(3) Model Number (ASCII Code)																																										
	(22)-(4) Model Number (ASCII Code)																																										
	(22)-(5) Model Number (ASCII Code)																																										
	(22)-(6) Model Number (ASCII Code)																																										
P	Play	Non or 1 byte	During Play (Answer for X and x commands)																																								
	Track No. (Binary)																																										

Code	Status	Parameter	Description																							
Q	Manual Search and Scan	1 byte	Audio Signal is being output during Manual Search and Scan. (Answer for X and x commands)																							
	(1) Manual Search																									
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table> : Block repeat : Manual Search			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																			
0	0	0	0	0	0	0	0																			
0	0	0	0	0	0	0	1																			
R	Ready	Non or 1 byte	No Disc is loaded. (Answer for X and x commands).																							
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></table> : No disc			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0							
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																			
0	0	0	0	0	0	0	0																			
S	Search	1 byte	Pick-up moving during the search function. (Answer for X and x command)																							
	(1) Recording Search																									
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table> : Play back/Standby search : Recording search			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																			
0	0	0	0	0	0	0	0																			
0	0	0	0	0	0	0	1																			
T	Time	5 bytes	Sends the Time. (Answer for E command)																							
	(1) Track No. (Binary) (2) Minute (BCD) (3) Minute (BCD) (4) Second (BCD) (5) SGroup / Frame (BCD)																									
U	Pause	Non or 1 byte	During Pause. (Answer for X and x commands)																							
	Track No. (Binary)																									
Z	Select Track	1 byte	Answer for Z command.																							
	Track No. (Binary)																									

Code	Status	Parameter	Description																																								
a	Record	Non or 1 byte	During record. (Answer for X and x commands)																																								
	Track No. (Binary)																																										
b	Record Pause	3 bytes	During record pause. (Answer for X and x commands)																																								
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																			
	0	0	0	0	0	0	0	0																																			
	0	0	0	0	0	0	0	1																																			
0	0	0	0	0	0	1	0																																				
0	0	0	0	0	0	1	1																																				
: Recording pause																																											
: Recording pause at digital unlock																																											
: Input monitor																																											
: Input monitor at digital unlock																																											
d	UTOC Write	Non or 1 byte	Answer for d command.																																								
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></table> : UTOC write			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0																								
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																				
0	0	0	0	0	0	0	0																																				
e	Name	10 bytes *(1) ~ (10)	Answer for a command.																																								
	(1) Data 1 code (ASCII)																																										
	(2) Data 2 code (ASCII)																																										
	(3) Data 3 code (ASCII)																																										
	(4) Data 4 code (ASCII)																																										
	(5) Data 5 code (ASCII)																																										
	(6) Data 6 code (ASCII)																																										
	(7) Data 7 code (ASCII)																																										
	(8) Data 8 code (ASCII)																																										
	(9) Data 9 code (ASCII)																																										
	(10) Data 10 code (ASCII)																																										
f	Hot Standby	Non or 1 byte	During hot standby. (Answer for X and x commands)																																								
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></table> : Hot start standby			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0																								
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																				
0	0	0	0	0	0	0	0																																				
g	POS	14 bytes or 1 byte	Answer for g command.																																								
	POS Code Response Enable																																										
	(1) POS existing code																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table> : Existing POS code			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	1	0	0	0	0	0	0	1																								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																			
	1	0	0	0	0	0	0	1																																			
	(2) POS code 1 (ASCII)																																										
	(3) POS code 2 (ASCII)																																										
	(4) POS code 3 (ASCII)																																										
	(5) POS code 4 (ASCII)																																										
	(6) POS code 5 (ASCII)																																										
	(7) POS code 6 (ASCII)																																										
	(8) POS code 7 (ASCII)																																										
	(9) POS code 8 (ASCII)																																										
	(10) POS code 9 (ASCII)																																										
	(11) POS code 10 (ASCII)																																										
	(12) POS code 11 (ASCII)																																										
	(13) POS code 12 (ASCII)																																										
	(14) POS code 13 (ASCII)																																										
	POS Code Response Disable																																										
	(1) <table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td></tr></table> : No existing POS code			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	1	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0																
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																			
	1	0	0	0	0	0	1	0																																			
	1	0	0	0	0	1	0	0																																			
	: No readed POS code																																										

Code	Status	Parameter	Description																																																																																																																																							
h	ISRC	1 or 13 bytes *(1) or (1) ~ (13)	Sends out ISRC. (Answer for h command)																																																																																																																																							
	ISRC Code Response Enable																																																																																																																																									
	(1) ISRC Existing Code																																																																																																																																									
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table> : Existing ISRC code			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	1	0	0	0	0	0	0	1																																																																																																																							
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																																																		
	1	0	0	0	0	0	0	1																																																																																																																																		
	(2) ISRC country code 1 (ASCII)																																																																																																																																									
	(3) ISRC country code 2 (ASCII)																																																																																																																																									
	(4) ISRC owner code 1 (ASCII)																																																																																																																																									
	(5) ISRC owner code 2 (ASCII)																																																																																																																																									
(6) ISRC owner code 3 (ASCII)																																																																																																																																										
(7) ISRC recording year 1 (ASCII)																																																																																																																																										
(8) ISRC recording year 2 (ASCII)																																																																																																																																										
(9) ISRC serial number 1 (ASCII)																																																																																																																																										
(10) ISRC serial number 2 (ASCII)																																																																																																																																										
(11) ISRC serial number 3 (ASCII)																																																																																																																																										
(12) ISRC serial number 4 (ASCII)																																																																																																																																										
(13) ISRC serial number 5 (ASCII)																																																																																																																																										
ISRC Code Response Disable																																																																																																																																										
(1) <table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td></tr></table> : No existing ISRC code			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	1	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0																																																																																																																
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																																																			
1	0	0	0	0	0	1	0																																																																																																																																			
1	0	0	0	0	1	0	0																																																																																																																																			
: No readed ISRC code																																																																																																																																										
i	Preset	6 bytes	Answer for I command																																																																																																																																							
	(1) Using Preset Area Request																																																																																																																																									
	(1)-(1) Using Preset area (Binary: 1~3)																																																																																																																																									
	(1)-(2) Reserved																																																																																																																																									
	(1)-(3) Reserved																																																																																																																																									
	(1)-(4) Reserved																																																																																																																																									
	(1)-(5) Reserved																																																																																																																																									
	(1)-(6) Reserved																																																																																																																																									
	(2)~(4) Preset Data																																																																																																																																									
	(2)~(4)-(1) Preset Code 1																																																																																																																																									
<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>1</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>1</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>0</td><td>0</td><td>0</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>0</td><td>0</td><td>1</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>0</td><td>1</td><td>0</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>0</td><td>1</td><td>1</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>1</td><td>0</td><td>0</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>1</td><td>0</td><td>1</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>1</td><td>1</td><td>0</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>1</td><td>1</td><td>1</td><td>X</td><td>X</td><td>X</td></tr><tr><td>0</td><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr><tr><td>0</td><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr><tr><td>1</td><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr></table> : Finish Stop			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	X	X	X	X	X	X	0	0	X	X	X	X	X	X	0	1	X	X	X	X	X	X	1	0	X	X	X	X	X	X	1	1	X	X	X	X	X	1	X	X	X	X	0	0	0	X	X	X	X	X	0	0	1	X	X	X	X	X	0	1	0	X	X	X	X	X	0	1	1	X	X	X	X	X	1	0	0	X	X	X	X	X	1	0	1	X	X	X	X	X	1	1	0	X	X	X	X	X	1	1	1	X	X	X	0	0	X	X	X	X	X	X	0	1	X	X	X	X	X	X	1	0	X	X	X	X	X	X
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: Finish Repeat																																																																																																																																										
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: Cue Det. -66 dB																																																																																																																																										
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Code	Status	Parameter	Description						
(2)-(4)-(2) Preset Code 2									
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	X	0	0	0	: End Mon OFF
	X	X	X	X	X	0	0	1	: End Mon 5 sec.
	X	X	X	X	X	0	1	0	: End Mon 10 sec.
	X	X	X	X	X	0	1	1	: End Mon 15 sec.
	X	X	X	X	X	1	0	0	: End Mon 20 sec.
	X	X	X	X	X	1	0	1	: End Mon 25 sec.
	X	X	X	X	X	1	1	0	: End Mon 30 sec.
	X	X	X	X	X	1	1	1	: End Mon 35 sec.
	X	X	0	0	0	X	X	X	: E.O.M. OFF
	X	X	0	0	1	X	X	X	: E.O.M. 5 sec.
	X	X	0	1	0	X	X	X	: E.O.M. 10 sec.
	X	X	0	1	1	X	X	X	: E.O.M. 15 sec.
	X	X	1	0	0	X	X	X	: E.O.M. 20 sec.
	X	X	1	0	1	X	X	X	: E.O.M. 25 sec.
	X	X	1	1	0	X	X	X	: E.O.M. 30 sec.
	X	X	1	1	1	X	X	X	: E.O.M. 35 sec.
	X	1	X	X	X	X	X	X	: Pre UTOC (1: ON/0: OFF)
	1	X	X	X	X	X	X	X	: UTOC (1: Auto Fixed)
(2)-(4)-(3) Preset Code 3									
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	X	0	0	0	: Reserved
	X	X	X	X	X	0	0	1	: Inc. Level -66 dB
	X	X	X	X	X	0	1	0	: Inc. Level -60 dB
	X	X	X	X	X	0	1	1	: Inc. Level -54 dB
	X	X	X	X	X	1	0	0	: Inc. Level -48 dB
	X	X	X	X	X	1	0	1	: Inc. Level -42 dB
	X	X	X	X	X	1	1	0	: Inc. Level -36 dB
	X	X	0	0	1	X	X	X	: Reserved
	X	X	0	1	0	X	X	X	: Rec Start -66 dB
	X	X	0	1	1	X	X	X	: Rec Start -60 dB
	X	X	1	0	0	X	X	X	: Rec Start -54 dB
	X	X	1	0	1	X	X	X	: Rec Start -48 dB
	X	X	1	1	0	X	X	X	: Rec Start -42 dB
	X	X	1	1	1	X	X	X	: Rec Start -36 dB
	X	1	X	X	X	X	X	X	: SCMS (1: ENA/0: INH)
	1	X	X	X	X	X	X	X	: Data Disp (1: ON/0: OFF)
(2)-(4)-(4) Preset Code 4									
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	X	0	0	0	: Rec Offset OFF
	X	X	X	X	X	0	0	1	: Rec Offset 1 sec
	X	X	X	X	X	0	1	0	: Rec Offset 2 sec
	X	X	X	X	X	0	1	1	: Rec Offset 3 sec
	X	X	X	X	X	1	0	0	: Rec Offset 4 sec
	X	X	X	X	X	1	0	1	: Rec Offset 5 sec
	X	X	X	X	1	X	X	X	: Hot Start ON (Fixed)
	X	X	X	1	X	X	X	X	: Pitch Auto (1: ON/0: OFF)
	X	X	1	X	X	X	X	X	: Playlock (1: ON/0: OFF)
(2)-(4)-(5) Preset Code 5									
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	X	X	X	1	: Power Save (1: ON/Fixed)
	X	X	X	X	X	1	X	X	: Rec Mono (1: Mono/ 0: Stereo)
	X	X	X	X	1	X	X	X	: bps (1: 19200/0: 9600)
	X	X	X	1	X	X	X	X	: Switch (1: ENA/0: INH)
	X	0	0	X	X	X	X	X	: End Cue 0 sec
	X	0	1	X	X	X	X	X	: End Cue -1 sec
	X	1	0	X	X	X	X	X	: End Cue -2 sec
	X	1	1	X	X	X	X	X	: End Cue -3 sec

Code	Status	Parameter	Description													
i	(2)~(4)-(6) Preset Code 6															
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>								b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0								
	X X X 1 0 0 0 0 0 : Player ID (1: ON/0: OFF)															
	X X X X 0 0 0 0 : Player ID 0															
	X X X ~ ~ ~ ~ : ~															
	X X X X 1 1 1 1 : Player ID 15															
	X 0 0 X X X X X : FS OFF (Fixed)															
1 X X X X X X X : Next Stdby (1: ENA/0: INH)																
l	Hot Data Load	1 byte	Loading Hot start data (Answer for X and x command.)													
	Memory No. (Binary)															
m	Data of Hot Tracks	21 bytes	Answer for d command													
	(1) Buffer 1 Track No. (Binary)															
	(2) Buffer 2 Track No. (Binary)															
	(3) Buffer 3 Track No. (Binary)															
	(4) Buffer 4 Track No. (Binary)															
	(5) Buffer 5 Track No. (Binary)															
	(6) Buffer 6 Track No. (Binary)															
	(7) Buffer 7 Track No. (Binary)															
	(8) Buffer 8 Track No. (Binary)															
	(9) Buffer 9 Track No. (Binary)															
	(10) Buffer 10 Track No. (Binary)															
	(11) Buffer 11~20 00h Fixed															
n	(12) Repeat Code															
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>								b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0								
0 0 0 0 0 0 0 0 : Repeat OFF																
0 0 0 0 0 0 0 1 : Repeat ON																
o	No Select Track, Index	Non or 1 byte	Answer for X and x command.													
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0					
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0									
0 0 0 0 0 0 0 0 : No select track																
p	Program input mode	Non or 1 byte	Answer for X and x command.													
	Step (Binary)															
t	Hot Start	Non or 1 byte	Answer for p command.													
	Memory No. (Binary)															
v	Editing Work	1 byte	Answer for t command.													
	(1) Editing Operation Code															
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>								b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0								
0 0 0 0 0 0 0 0 : Editing end																
0 0 0 0 0 0 0 1 : During editing																
0 0 0 0 0 0 1 0 : Editing failure																
v	Pich	1 byte	Answer for v command.													
	(1) Pitch Setting Code															
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>								b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0								
	1 1 0 1 0 0 0 0 : Pitch -8.0															
	1 1 0 0 1 1 1 1 : Pitch -7.9															
	~ ~ ~ ~ ~ ~ ~ ~ : ~															
	1 0 0 0 0 0 0 1 : Pitch -0.1															
	0 0 0 0 0 0 0 0 : Pitch ±0															
	0 0 0 0 0 0 0 1 : Pitch 0.1															
	0 0 0 0 0 0 1 0 : Pitch 0.2															
	~ ~ ~ ~ ~ ~ ~ ~ : ~															
0 1 0 1 0 0 0 0 : Pitch 8.0																

Code	Status	Parameter	Description																																																																																								
w	Edit	Non or 1 byte	Answer for X or x command																																																																																								
	(1) Executing Edit																																																																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table> : Inputting edit : Executing edit			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1																																																																
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y	Preset mode	Non or 1 byte	Answer for X and x command.																																																																																								
	(1) Writing EEPROM																																																																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table> : Inputting preset : Writing EEPROM			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1																																																																
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																			
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z	Test	Non or 1 byte	Answer for X and x command.																																																																																								
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></table> : Test			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0																																																																								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																			
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:	EEP ROM status	1 byte	Answer for: command.																																																																																								
	(1) EEPROM Code																																																																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td></tr></table> : EEPROM No Error : EEPROM Reading : EEPROM Writing : EEPROM Work Error			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0																																																
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																			
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<	Preset 2 contents	6 bytes	Answer for < command.																																																																																								
	(1) Preset Code 7																																																																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td></tr></table> : Fader Pause : Fader Play			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	X	X	X	X	X	X	X	0	X	X	X	X	X	X	X	1																																																																
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																			
	X	X	X	X	X	X	X	0																																																																																			
	X	X	X	X	X	X	X	1																																																																																			
	(2) Preset Code 8																																																																																										
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5. Command Sequence

Apply the SEND STATUS COMMAND [X] or [x] from the Host Controller at all times for reading out the status of the DN-M1050R. Then take necessary steps.

6. Notice upon designing the Controller

- 1) After turning on the power or receipt of the Resetting Command [R], the unit will not accept new command for 0.5sec. in order for internal-unit initializing.
- 2) When a command is issued from the controller, send out next command after the acknowledge [A], Invalid [I] or the STATUS CODE is received.
- 3) Some of the commands may not be accepted except the unit is in the specific status mode.

These specifications and ratings are subject to change for improvement.

SERVICE MODE

Service Mode

Setting Service mode

While simultaneous pushing
PLAY/PAUSE button and STDBY/CUE
button, turn the power switch ON.

Use SELECT knob and button
corresponding to the MD for Service
Mode execution.
Turn SELECT knob to select
"Check Servo?"

Press SELECT knob to set
the SERVICE mode, and
the "TEMP ADJUST" will be displayed.

Temperature compensation offset
adjustment TEMP ADJUST

Don't perform this adjustment
in normal state.

Laser power adjustment
LDPWR ADJUST Page 34

Traverse adjustment
EFBAL ADJUST Page 36

Focus bias adjustment
FBIAS ADJUST Page 37

Focus bias adjustment check
FBIAS CHECK Page 39

Playback check mode
CPLAY MODE

Rec. Play check mode
CREC MODE

Nonvolatile memory mode
EEP MODE

This mode is not used in service.
If you have this mode while servicing,
cancel this mode immediately
by pressing the END. MON/CLEAR
button.

The mode switches every time by
turning the SELECT knob.

Key Functions

Key name	Function
Select Knob	Settlement of Parameter, Mode.
PLAY / PAUSE	Proceed forward. Settled.
END. MON/CLEAR	Back to previous. Cancelled.
CUE. SEARCH	Continuous Play when pressing it in STOP status, and Tracking Servo ON/OFF when pressing it while continued playing.
STDBY/CUE	Stop of Continuous Playing / Continuous Recording.
SEARCH +	The slider moves to the outer periphery direction while turning.
SEARCH -	The slider moves to the inner periphery direction while turning.
REC	Recording ON/OFF by pressing it while continuous playing.
PROGRAM ON/OFF	Select the pit mode.
PROGRAM IN	Select the groove mode.
DISP	Switching the contents of displaying. The display is changed by Pushing the switch every once.

Note:

- In service mode, the function of the erase protection knob is not detected. If you press REC key, in Traverse mode or Continuous recording mode, your recorded disk may be erased. Pay attention to your disk used for it.

Notice of adjustment

When replacing the following parts, adjust and check the items marked with ○.

Adjustment	Optical Pick-up	Mechanism P.W. Board		
		IC171	D101	IC101, 121, U1
1. Temperature compensation offset adjustment	×	○	○	○
2. Laser power adjustment	○	×	×	○
3. Traverse check	○	○	×	○
4. Focus bias adjustment	○	○	×	○
5. Error rate check	○	○	×	○

Creating the MO disk of continuous recording

- This disk is used for the focus adjustment bias and the error rate check.
The following describes how to create the MO disk of continuous recording.

1. Load a MO disk (blank disk) sold in the market.

2. Turn SELECT knob to display [CREC MODE].

3. Press PLAY/PAUSE button to display [CREC IN].

4. Press PLAY/PAUSE button again to display [CREC MID].
Recording will be started. Recording term should be within 5 minutes.

5. Press END. MON/CLEAR button to stop recording.

6. Press EJECT button to eject the MO disk.

Note:

- Do not apply any vibration while performing continuous recording.

Laser Power adjustment
LDPWR ADJUST

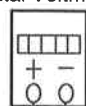
Note:

- Don't look the emit lighting of the laser diode from just above to prevent you from the loss of eyesight.
- Pay special attention to handle the laser diode of the optical pick-up, since it is easy to have an electrostatic break.

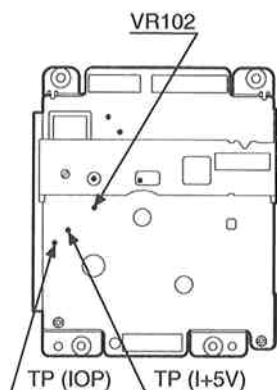
Connection Diagram

- Connect the digital voltmeter to TP(IOP) and TP(I+5V).

Digital Voltmeter



TP (IOP)
TP (I+5V)



Adjustment Method

1. Set the laser power meter on the object lens of the optical pick-up.
(The optical pick-up is moved by pressing the manual search key.)
2. Turn SELECT knob to display [LDPWR ADJUST].
3. Press PLAY/PAUSE button twice to display [LD\$4B+3.5mW].
4. Adjust the VR102 (APC ADJ) of the Mechanism P.W.Board so that the reading of the laser power meter becomes 3.4 to 3.5mW.
5. Press PLAY/PAUSE button to display [LD\$96=7mW]. : Writing laser power adjustment
6. Check that the readings of the laser power meter and the digital voltmeter are within specified values below.

Specification

Reading of the laser power meter: $7.0 \pm 0.3\text{mW}$

Reading of the digital voltmeter: $\pm 10\%$ of indicated value on the Optical Pick-up.

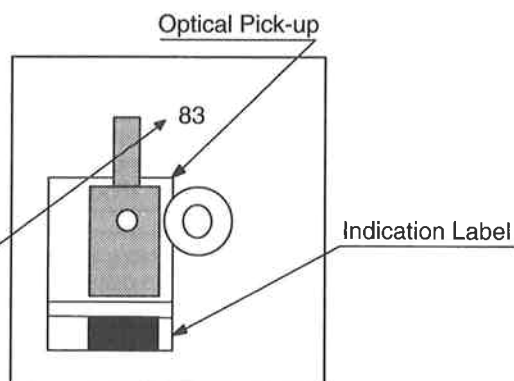
(Indication of the optical pick-up)

KMS-260A
X X X X X
0 8 2 5

The value with handwriting is lop value.
The value indicated on the label is rounded off. In case of 82.5mA, the value 83 is shown.

In this example, $\text{lop}=82.5\text{mA}$

$\text{lop}(\text{mA}) = \frac{\text{The reading}(\text{mV}) \text{ of digital voltmeter}}{\div 1 (\text{ohm})}$



7. Press PLAY/PAUSE button to display [LD\$0F=0.7mW].
Check that the reading of the laser power meter is $0.70 \pm 0.1\text{mW}$.
8. Press END. MON/CLEAR button to display [LDPW ADJUST], and stop the laser emit lighting.
(END. MON/CLEAR button is accepted any time to press, and the laser emit lighting can be stopped.)

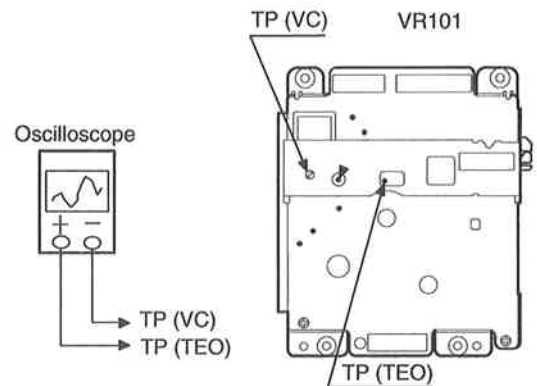
Note:

- Laser power adjustment and check should be performed at the ambient temperature $22^\circ\text{C} \pm 2^\circ\text{C}$ and humidity $50\% \pm 5\%$.
(If the ambient condition differs, the deviation values should be corrected.)

Traverse Adjustment EFBAL ADJUST

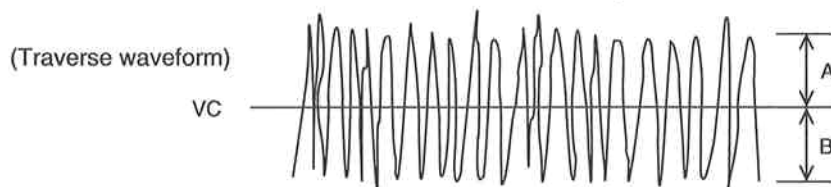
Connection Diagram

- Connect the oscilloscope to TP(TEO) and TP(VC)



Adjustment Method

1. Load a MO disk sold in the market.
2. Press SEARCH+/- button to move the optical pick-up from the pit portion to outer periphery.
3. Turn SELECT knob to display [EFBAL ADJUST].
4. Press PLAY/PAUSE button to display [EFBAL MO-W].
5. Adjust the VR101 on the Mechanism P.W.Board so that the waveform on the oscilloscope becomes A=B.



6. Press PLAY/PAUSE button. (MO groove read power traverse adjustment)
7. Turn SELECT knob so that the waveform on the oscilloscope becomes A=B.
(The waveform is changed when pressing the automatic search key. The waveform is changed in approximate 3% steps by this adjustment, and it should be adjusted closest to A=B.)
8. Press PLAY/PAUSE button to save the adjustment result into the nonvolatile memory. In that time, [EFB=\$_SAVE] is displayed in a moment, then the display will be changed to [EFBAL MO-P].
9. Press PLAY/PAUSE button to display [EFB=\$_ MO-P].
The optical pick-up moves to the pit portion area automatically, and it is controlled by the servo.
10. Turn SELECT knob so that the waveform on the oscilloscope becomes A=B.
(The waveform is changed when pressing the automatic search key. The waveform is changed in approximate 3% steps by this adjustment, and it should be adjusted closest to A=B.)
11. Press PLAY/PAUSE button to save the adjustment result into the nonvolatile memory. In that time, [EFB=\$_SAVE] is displayed in a moment and the display will be changed to [EFBAL CD], then the rotation of the disk automatically stops.
12. Press EJECT button to eject the MO disk.

13. Load the test disk TDYS-1.

14. Press PLAY/PAUSE button to be controlled by the servo.

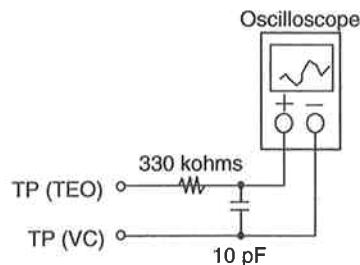
15. Turn the SELECT knob so that the waveform on the oscilloscope becomes A=B.
(The waveform is changed when pressing the automatic search key. The waveform is changed in approximate 3% steps by this adjustment, and it should adjusted closest to A=B.)

16. Press PLAY/PAUSE button to save the adjustment result into the nonvolatile memory. At that time, [EFB=\$_SAVE] is displayed in a moment and the display will be changed to [EFBAL ADJUST].

17. Press EJECT button to eject the test disk TDYS-1.

Note:

- If the recorded disk is used for this adjustment, the data is erased when writing into the MO disk.
- If the traverse waveform is difficult to see, it becomes better by connecting the filter as shown below.



**Focus Bias Adjustment
FBIAS ADJUST**

Adjustment Method

1. Load the continuous recorded disk (Refer to "Creating the MO disk of continuous recording").

2. Turn SELECT knob to display [CPLAY MODE].

3. Press PLAY/PAUSE button 3 times to display [CPLAY MID]. Note: *1
Press END. MON/CLEAR button after displaying [C1=____AD=____].

4. Turn SELECT knob to display [FBIAS ADJUST].

5. Press PLAY/PAUSE button to display [____/____a=____].
The first 4 digit numerals show C1 error rate, the numerals after [/] show ADER, and the numerals after [a=] show the amount of focus bias.

6. Turn SELECT knob to find the amount of focus bias which has 220 of C1 error rate.

7. Press PLAY/PAUSE button to display [____/____b=____].

8. Turn SELECT knob to find the amount of focus bias which has 220 of C1 error rate.

9. Press PLAY/PAUSE button to display [____ / ____ c= ____].

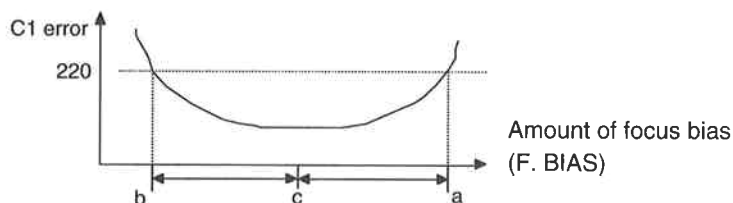
10. At that time, check that the C1 error rate is less than 50 and ADER is 00, then press PLAY/PAUSE button.

11. If the value of display [(____)] in the [____ - ____ - (____)] shows more than 20, press PLAY/PAUSE button. If it is less than 20, press END. MON/CLEAR button and perform the adjustment again from the step 2 above.

12. Press END. MON/CLEAR button and press EJECT button to eject the continuous recorded disk.

Note:

- The relation between C1 error and the amount of focus bias is shown in the figure below. Find the point a and b in the figure below after adjusting the process described above. The best focus point c can be obtained by calculating automatically from the points a, b.
- Adjust the C1 error rate by reading the average value since it has fluctuation.



- If an extreme set value is written for the focus bias other than normal range, it makes impossible to activate focus servo anymore. Be careful enough when writing the bias value.

Checking error rate

Checking CD error rate

Check Method

1. Load the test disk TDYS-1.

2. Turn SELECT knob to display [CPLAY MODE].

3. Press PLAY/PAUSE button 3 times to display [CPLAY MID]. [C1=____ AD= --] is displayed. Note: *1

4. Check that the C1 error rate is less than 20.

5. Press END. MON/CLEAR button key to stop playing-back, and press EJECT button to eject the test disk.

Checking MO error rate

Check Method

1. Load a continuous recorded disk.

2. Turn SELECT knob to display [CPLAY MODE].

3. Press PLAY/PAUSE button 3 times to display [CPLAY MID]. [C1=____ AD=____] is displayed.
C1=____ shows C1 error, AD=____ shows ADER.

Note: *1

4. Check that the C1 error rate is less than 50, and ADER is 00.

5. Press END. MON/CLEAR button to stop playing-back, and press EJECT to eject the continuous recorded disk.

Focus Bias Check FBIAS CHECK

Check Method

1. Load the continuous recorded disk.

2. Turn SELECT knob to display [CPLAY MODE].

3. Press PLAY/PAUSE button 3 times to display [CPLAY MID].
Press END. MON/CLEAR button after displaying [C1=____ AD=____]. Note: *1

4. Turn SELECT knob to display [FBIAS CHSCK].

5. Press PLAY/PAUSE button to display [____/ ____c=____].
The first 4 digit numerals show C1 error rate, the numerals after [/] show ADER, and the numerals after [c=] show the amount of focus bias.
At this time, check that the C1 error rate is less than 50 and ADER is 00.

6. Press PLAY/PAUSE button, changes the display to [____/ ____b=____].
At this time, check that the C1 error rate is less than 220 and ADER is always 00.

7. Press PLAY/PAUSE button, changes the display to [____/ ____a=____].
At this time, check that the C1 error rate is less than 220 and ADER is always 00.

8. Press END. MON/CLEAR button, and press EJECT button to eject the continuous recorded disk.

Note:

- In case C1 error or ADER rate exceeds 00 at the points a or b, focus bias adjustment may deviated.
Perform readjustment.

Note:*1

About [CPLAY MODE] mode switching

For the mode switching, [CPLAY UTOC]→[CPLAY IN]→[CPLAY MID]→[CPLAY OUT]→[CPLAY UTOC]→..., make it with PLAY/PAUSE button after [C1=____ AD=____] displayed following to switch over each mode.

CONFIRMING THE AUDIO

1. Necessary Equipment for Adjustment

Distortion-Factor Meter
 VTVM
 Low-Pass Filter (20kHz)
 AF Oscillator (20Hz ~ 20kHz, +18dBm)
 Reference Disc; Sony TDYS-1
 Recordable Mini Disc

2. Prior to Starting the Adjustment

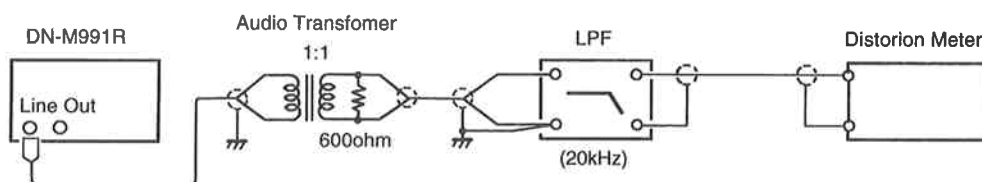
- 1) Audio circuit shall be adjusted after adjustment of servo circuit.

3. Adjustment of Super Linear Converter

Adjustment of Super Linear Converter is only performed at a time the DA converter is replaced.

- 1) Connect the LINE OUT to the distortion-factor meter through the low-pass filter.

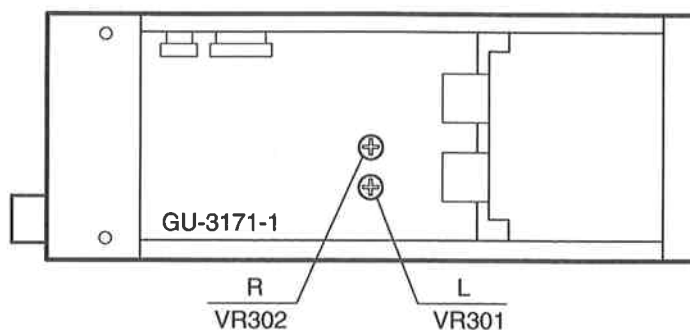
Note: If your distortion-factor meter has unbalanced input terminals, 1:1 ratio audio transformer is required between the unit and the measuring instrument in order to float the active balanced outputs from the ground.



Super Linear Converter Adjustment

- 2) Remove the bottom cover.
- 3) Turn the power switch ON.
- 4) Load the reference disc (Sony TDYS-1)
- 5) Set track No. "2" with SEARCH knob and press PLAY/PAUSE button.
- 6) Turn VR301 (L-ch) or VR302 (R-ch) on the MAIN unit so that distortion meter shows minimum distortion figures.

BOTTOM VIEW

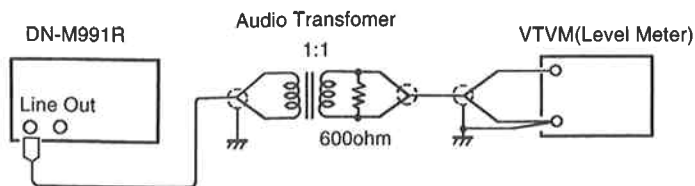


Location of Distortion-Factor Adjustment VRs

4. Output Level Adjustment

- 1) Connect VTVM to the output connector of DN-M991R.

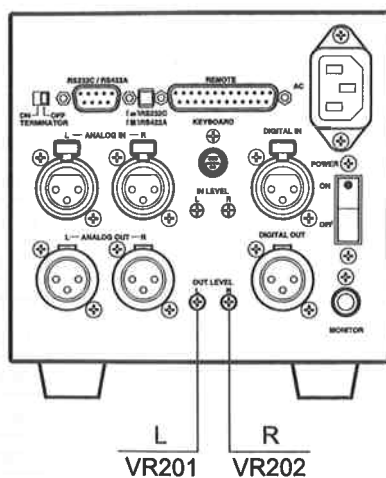
Use 1:1 600 ohm Audio Transformer between the unit and VTVMs in order for matching the unbalanced input of VTVM and the active balanced output of DN-M991R as shown in figure.



Connection for Output Level Adjustment

- 2) Set track No. "2" and press PLAY/PAUSE button.
- 3) While reading VTVM indication, adjust VR201 (L-ch) and VR202 (R-ch) so that the output level attains +18dBm (or desired level).

REAR VIEW



Location of Level Adjustment VRs

TOTAL RUNNING TIME

This indicates the period of time that the spindle motor was rotating. The total rotating time of the spindle motor is registered in a unit of hour since the power is turned on.

1. Setting in the Total Running Time Display Mode

- (1) While pressing the PLAY/PAUSE and STDBY/CUE buttons simultaneously, turn the power switch ON.
- (2) Turn the SELECT knob to select "Total Time?", press the PUSH key to display "Time ***** H".
(*****: 0~65535 hour)

2. Cancelling the Total Running Time Display Mode

To cancel the total running time, turn the power switch OFF.

3. Deleting The Total Running Time Data

- (1) Press the PUSH key to get into the total running time data deletion mode when in the total running display mode.
- (2) When in the total running time data deletion mode, press the PLAY/PAUSE button to delete the data in the EEPROM and display "Time 00000H". If it is unsuccessful, "Delete NG" is displayed.

Note: In case of replacing the spindle motor, delete this data without fail.

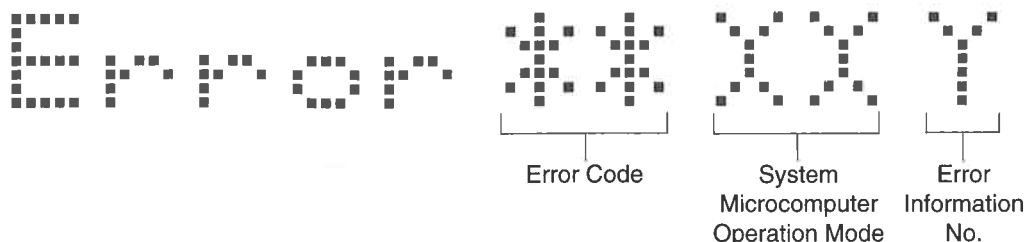
ERROR CODE

1. Setting in the Error Information Display Mode

- (1) While pressing the PLAY/PAUSE and the STDBY/CUE buttons simultaneously, turn the power switch ON.
- (2) Turn SELECT knob to select "Error Disp?", then press the PUSH key to display "Error ** XX Y" or "No Error".

2. Viewing the Error Code Display

When completed item 1 above, turn the track select key clockwise to display the next error information by every step until the end error information, or turn the track select key counterclockwise to display the previous error information by every step until the start error information.



Error Code List

ERROR CODE	MODE	CONTENTS
52	REC	Computing miss error of the cluster.
53		DRAM full error when in the recording.
54		Address error of the P-FRA.
61		Transmitting end error (SCTX error) when in the recording.
62		ADIP read error when before the recording.
63		Time-over error when in the recording.
65	SEARCH	Search error when searching for the playback.
66		Search error when in the playback.
67		Search error when starting the recording.
68		Search error when in the recording.
69	REC	Head down error when starting the recording.
6B		Off track error when in the recording
6C	OTHER ERROR	Off track error according with ADIP jump detection.
71	TOC READ	TOC address continuous error.
72		TOC format is abnormal.
73	UTOOC READ	UTOOC address continuous error.
74		UTOOC format is abnormal.
75	TOC READ	TOC search error.
76	UTOOC READ	UTOOC search error.
81	UTOOC WRITE	ADIP read error when before the UTOOC writing.
82		Trasmitting end error when in the UTOOC writing.
83		Recording time over error when in the UTOOC writing.
84		Search error when starting the UTOOC writing.
85		Search error when in the UTOOC writing.
86		Magnetic head down error when starting the UTOOC writing.

ERROR CODE	MODE	CONTENTS
87	UTOC WRITE	Verify search error when in the UTOC writing.
88		Verify error when in the UTOC writing.
89		SHCK error when in the UTOC writing.
8a		ADIP jump error when in the UTOC writing.
91	OTHER ERROR	SRAM argument is abnormal.
92		Link P is abnormal in the SRAM.
93		Disc type error in the SRAM.
94		Track number error in the SRAM.
b2	REC PLAY INITIAL	Focus retry error.
b3		Spindle retry error.
b4		Adjustment time out error.
b5		Unable to adjust.
b6	INITIAL STOP	EEPROM read error.
b7	SERVICE	EEPROM write error.
b8		Unable to decide the adjustment.
bb	OTHER ERROR	Off set corrective error
c1	INITIAL STOP	Inner circle switch ON error even if the time (5 sec.) is over.
c2		Inner circle switch OFF error even if the time (5 sec.) is over.
f2	OTHER ERROR	LSI access error when the serial transmittal is end and the flag does not rise.
f5	REC	Head up error between 1 sec.
fe	OTHER ERROR	Decision condition error 1 when processing is possible continuously.
ff		Decision condition error 2 when unable to process continuously.
01		Microcomputer access error when the answer does not send out from the drive microcomputer.

System Microcomputer Operation Mode

d7	d6	d5	d4	d3	d2	d1	d0	
0	0	0	0	0	X	X	X	: Some error occurs in the no disc mode.
0	0	0	0	1	X	X	X	: Some error occurs in the loading mode.
0	0	0	1	0	X	X	X	: Some error occurs in the TOC/UTOC read mode.
0	0	0	1	1	X	X	X	: Some error occurs in the track search mode.
0	0	1	0	0	X	X	X	: Some error occurs in the time search mode.
0	0	1	0	1	X	X	X	: Some error occurs in the standby mode.
0	0	1	1	0	X	X	X	: Some error occurs in the play mode.
0	0	1	1	1	X	X	X	: Some error occurs in the pause mode.
0	1	0	0	0	X	X	X	: Some error occurs in the end monitor mode.
0	1	0	0	1	X	X	X	: Some error occurs in the manual pause.
0	1	0	1	0	X	X	X	: Some error occurs in the scan mode.

d7	d6	d5	d4	d3	d2	d1	d0
----	----	----	----	----	----	----	----

0	1	0	1	1	X	X	X	: Some error occurs in the stop moving mode.
0	1	1	0	0	X	X	X	: Some error occurs in the stop mode.
0	1	1	0	1	X	X	X	: Some error occurs in the power save mode.
0	1	1	1	0	X	X	X	: Some error occurs in the REC search mode.
0	1	1	1	1	X	X	X	: Some error occurs in the REC standby mode.
1	0	0	0	0	X	X	X	: Some error occurs in the REC mode.
1	0	0	0	1	X	X	X	: Reserve
1	0	0	1	0	X	X	X	: Reserve
1	0	0	1	1	X	X	X	: Reserve
1	0	1	0	0	X	X	X	: Some error occurs in the REC pause mode.
1	0	1	0	1	X	X	X	: Reserve
1	0	1	1	0	X	X	X	: Some error occurs in the REC increment mode.
1	0	1	1	1	X	X	X	: Some error occurs in the REC monitor mode.
1	1	0	0	0	X	X	X	: Some error occurs in the level REC input waiting mode.
1	1	0	0	1	X	X	X	: Some error occurs in the UTOC write mode.
1	1	0	1	0	X	X	X	: Some error occurs in the hot start continual load mode.
1	1	0	1	1	X	X	X	: Some error occurs in the hot start mode.
1	1	1	0	0	X	X	X	: Some error occurs in the hot start pause mode.
1	1	1	0	1	X	X	X	: Some error occurs in the hot start single load mode.
1	1	1	1	0	X	X	X	: Some error occurs in the eject mode.
1	1	1	1	1	X	X	X	: Some error occurs in the edit mode.
X	X	X	X	X	0	0	0	: Some error occurs in the operation step 0.
X	X	X	X	X	0	0	1	: Some error occurs in the operation step 1.
X	X	X	X	X	0	1	0	: Some error occurs in the operation step 2.
X	X	X	X	X	0	1	1	: Some error occurs in the operation step 3.
X	X	X	X	X	1	0	0	: Some error occurs in the operation step 4.
X	X	X	X	X	1	0	1	: Some error occurs in the operation step 5.
X	X	X	X	X	1	1	0	: Some error occurs in the operation step 6.
X	X	X	X	X	1	1	1	: Some error occurs in the operation step 7 over.

3. Cancelling the Error Display Mode

To cancel the error display mode, turn the power switch OFF.

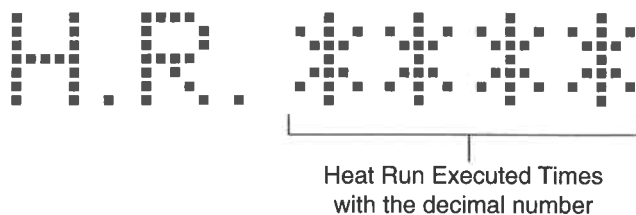
4. Deleting the Error Information

- (1) Press the PUSH key to become the error information deletion mode when in the error information display mode, or press the PUSH key to return the error information display mode when in the error information deletion mode.
- (2) When in the error information deletion mode, press the PLAY/PAUSE button to delete all memory error information in the EEPROM and display "No Error". If it is unsuccessful, displays "Delete NG".

HEAT RUN MODE

1. Setting in the Heat Run Mode

- (1) While pressing the PLAY/PAUSE and STDBY/CUE buttons simultaneously, turn the power switch ON.
- (2) Turn the track select key to select "Heat Run?" .
- (3) Press the PUSH key to become the heat run mode and display as following.



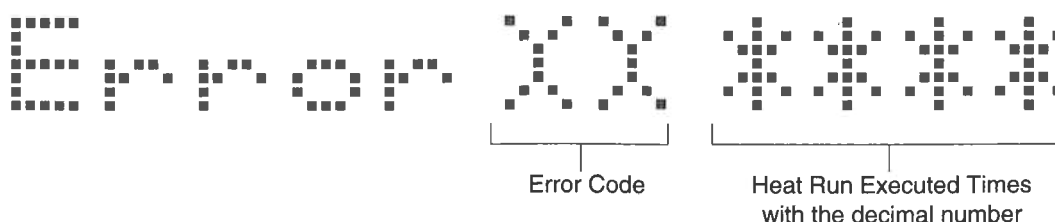
2. Operation in the Heat Run Mode

- (1) Set the disc of write protect ON with recordable disc, high bright disc and premastered disc.
 - ① Searches the first track which is reading the TOC/UTOC, starts playback when search is completed.
 - ② In case the disc is less than 20 tracks, continues playback with all track and stops after playback is end.
 - ③ In case the disc is more than 20 tracks, continues playback with the first track and end track only, and stops after playback is end.
 - ④ After stop, reads TOC/UTOC again and repeats playback operation.
- (2) Set the disc of write protect OFF with recordable disc.
 - ① Reads the TOC/UTOC. In case there is recordable time, records for 1 min.
 - ② After the record is completed, writes UTOC and stops it.
 - ③ After stoped when UTOC write is completed, searches the first track which is reading TOC/UTOC.
 - ④ After the first track search is completed continues playback from the first track to the end track.
 - ⑤ After the end track playback is completed, executes operation ①.
 - ⑥ After reading TOC/UTOC as operation ①. In case there is not recordable time, executes the disc erase and UTOC write.
 - ⑦ Stops after writing UTOC as operation ⑥, and executes operation ①.
 - ⑧ In case there is not recordable time in the first set disc, executes operation ⑥.

Note: In the operation, all key is invalid.

3. Error in the Heat Run Mode

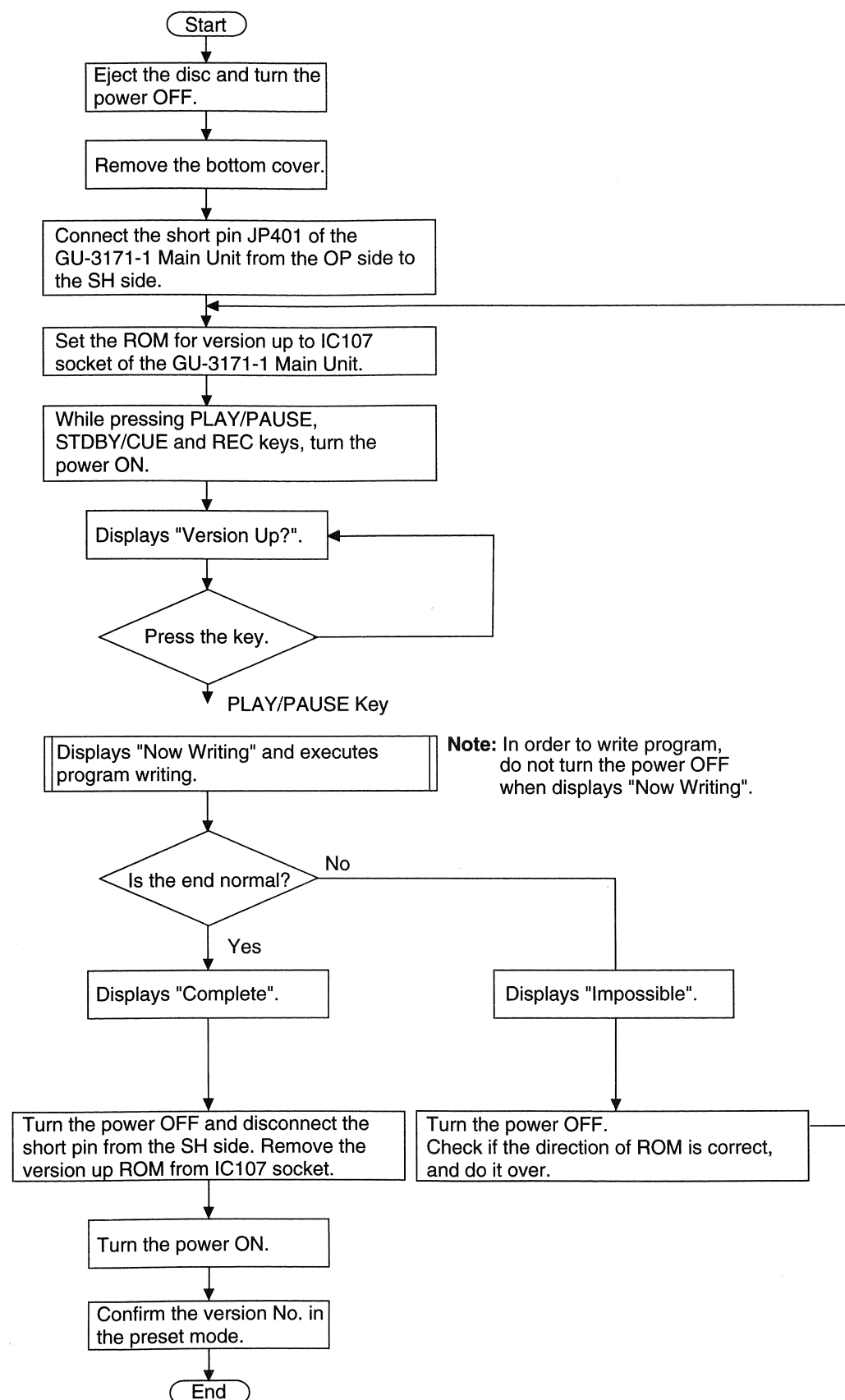
If some error occurs in the heat run mode, displays as following:



4. Cancelling the Heat Run Mode

To cancel the heat run mode, turn the power OFF.

VERSION UP METHOD FOR DRIVE MICROCOMPUTER (GU-3171-1 IC101)



IN CASE OF REPLACING FOR EEPROM

When replaced the EEPROM, it is necessary that the EEPROM should be initialized as the following.

- (1) While pressing the SEARCH +, SEARCH- and CUE SEARCH keys simultaneously, turn the power switch ON.
- (2) Actuates the EEPROM initialization mode and displays "Initial Fac". When initialization is completed, preset setting, program, name display mode, PLAY mode, time code display mode and error code become the factory delivery status, and return to the normal display state.
- (3) When initialization is unsuccessful, displays "Initial Error".

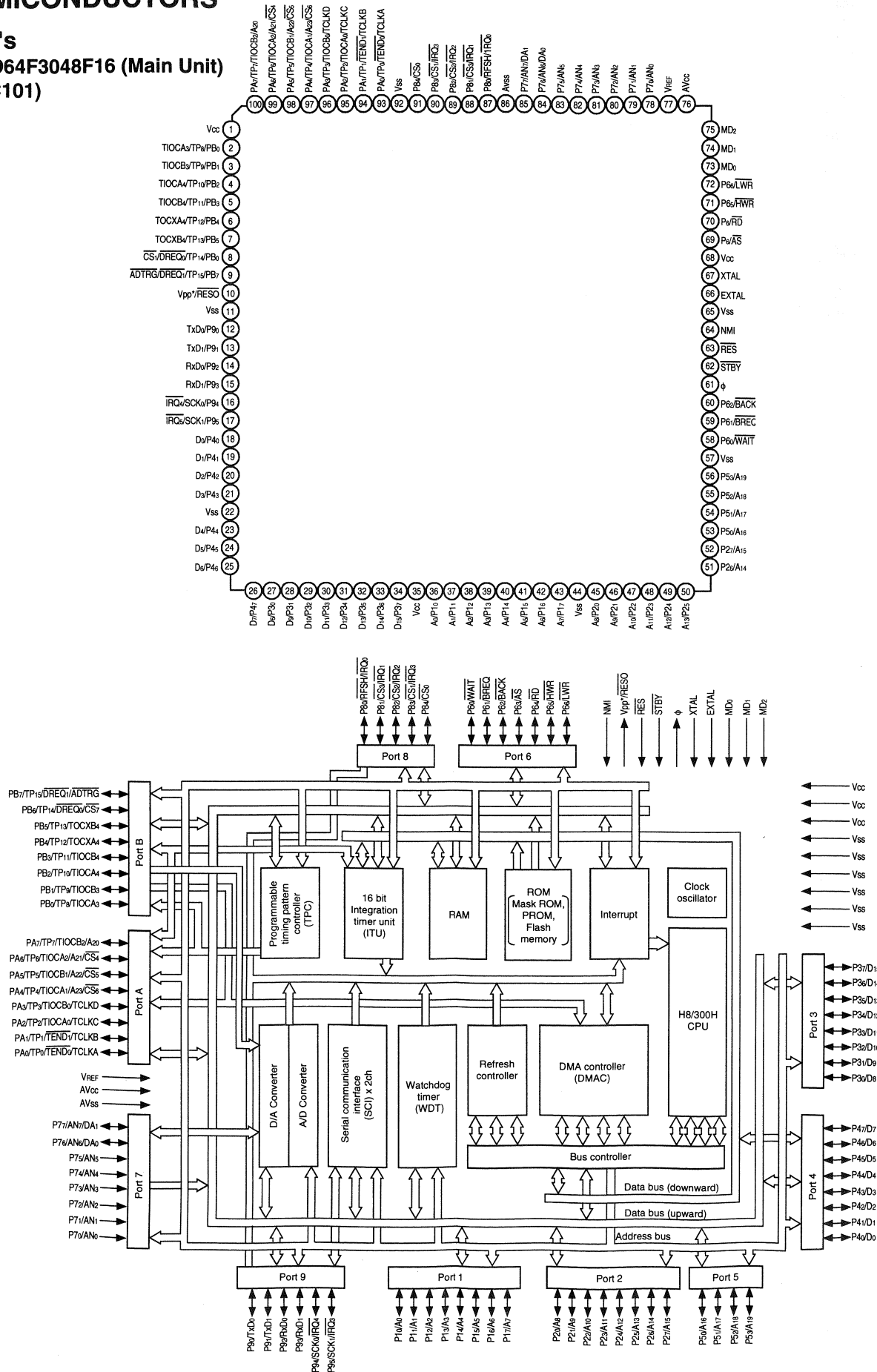
IN CASE OF FLAW AND DUST FOR PICK UP AND DISC

When the pick up or disc has flaw or dust, the below message is displayed. Clean the pick up or replace the disc, confirm it again. (Below message contents did not memory in the EEPROM error code.)

- | | |
|-----------------|---|
| "REF NG" | : Automatical adjustment is not executed properly.
(Operation with default adjustment value) |
| "EEPROM NG" | : EEPROM of mechanism is not properly.
(Operation with default adjustment value) |
| "HEAD NG" | : Some trouble occurs on the magnetic head. |
| "BAD CONDITION" | : Some trouble occurs between the system microcomputer and mechanism microcomputer communication. |
- Time code display blinks (2 sec. interval) at playback : Unable to read address at playback with wrong address.

SEMICONDUCTORS

● IC's
HD64F3048F16 (Main Unit)
(IC101)

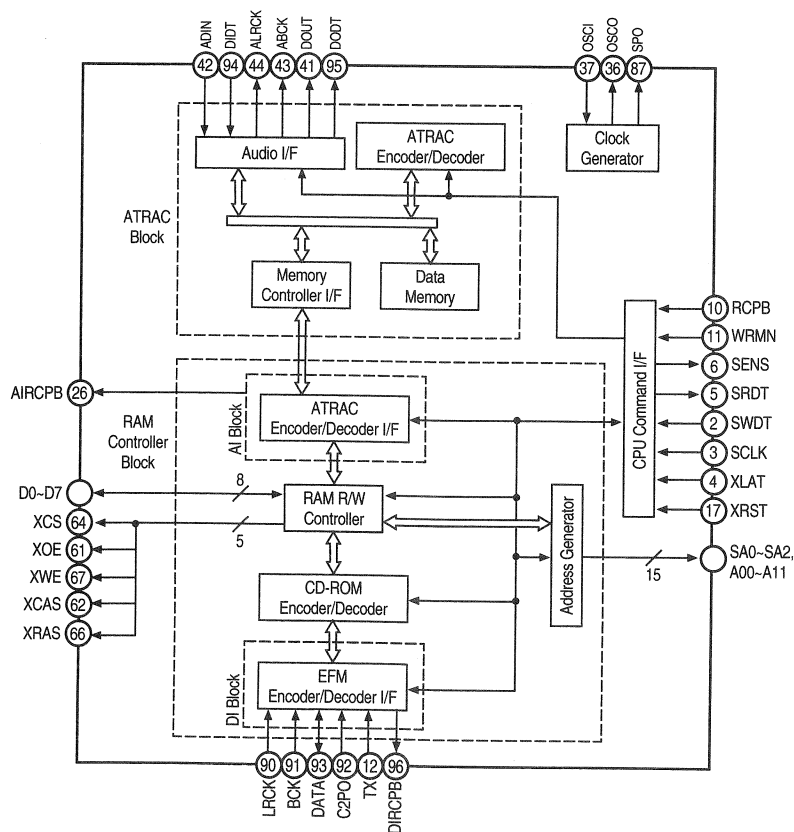
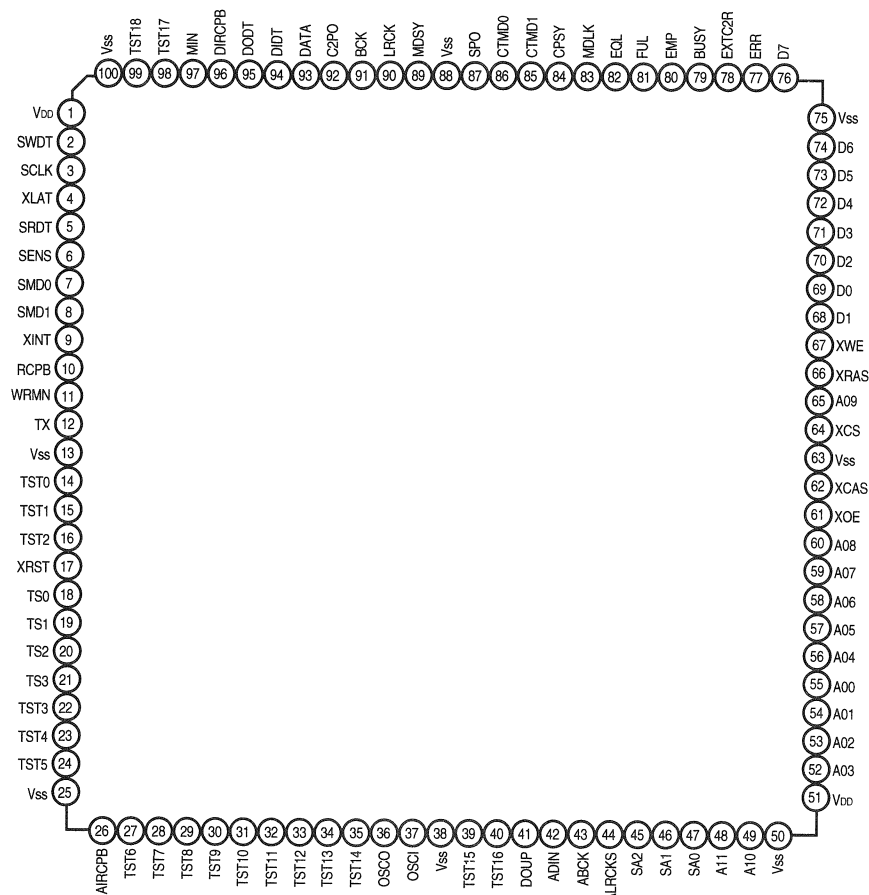


HD64F3048F16 Terminal Function

Pin No.	Terminal Name	Symbol	I/O	Det	Res	Ext	Ini	Function
1	Vcc	Vcc	I	—	—	+5V	—	Connect with power supply (+5V).
2	PB0/TP8/TIOCA3	ITMSYNC	O	—	—	PU	H	Time code sync output (outputs "L" pulse when each audio address is renewed).
3	PB1/TP9/TIOCB3	ACK	O	—	—	PD	L	Acknowledge output for communication between the microcomputer.
4	PB2/TP10/TIOCA4	!DRVTRY	O	—	—	PU	H	Tally out signal output (L: starting).
5	PB3/TP11/TIOCB4	!DLAT	O	—	—	—	H	Latch signal output to digital filter.
6	PB4/TP12/TOCXA4	REC/!PB	O	—	—	—	L	Mode switching signal output (L: playback, H: recording).
7	PB5/TP13/TOCXB4	WRMN	O	—	—	PD	L	Write/Monitor mode switching output (L: monitor, H: write).
8	PB6/TP14/!DREQ0/!CS7	SCTX	O	—	—	PD	L	Enable signal output of data output when recording (H: enable).
9	PB7/TP15/!DREQ1/!ADTRG	!XLAT	O	—	—	PU	H	Latch signal output for peripheral LSI control.
10	!RESO/Vpp	Vpp	I	—	—	PU	—	Reset output/ON port program power supply for writing.
11	Vss	Vss	I	—	—	OV	—	Connect with ground (0V).
12	P90/TxD0	SWDT	O	So	—	PU	H	Serial data output for peripheral LSI control.
13	P91/TxD1	SIN	O	So	—	PU	H	Serial data output for communication between the microcomputer to system microcomputer SIN.
14	P92/RxD0	SRDT	I	Si	—	PU	—	Serial data input for peripheral LSI control.
15	P93/RxD1	SOUT	I	Si	—	PU	—	Serial data input for communication between the microcomputer to system microcomputer SOUT.
16	P94/SCK0/!IRQ4	SCLK	O	Sck	—	PU	H	Serial clock output for peripheral LSI control.
17	P95/SCK1/!IRQ3	UCLK	I	Sck	—	PU	—	Serial clock input for communication between the microcomputer to system microcomputer SCLK.
18	P40/D0	SCIMDO	O	—	—	NC	—	Non connect
19	P41/D1	TEST41	O	—	—	NC	H	Non connect
20	P42/D2	LDOUT	O	—	—	PD	L	Loader open/Head up signal output (H: ON).
21	P43/D3	LDIN	O	—	—	PD	L	Loader close/Head down signal output (H: ON).
22	Vss	Vss	I	—	—	OV	—	Connect with ground (0V).
23	P44/D4	LDON	O	—	—	PD	L	Laser ON/OFF switching signal output (H: ON).
24	P45/D5	MOD	O	—	—	PU	H	Switching signal output for high frequency superimposed circuit operation (L: ON).
25	P46/D6	WRPWR	O	—	—	PD	L	Laser power swithing signal output (H: recording power, L: playback power).
26	P47/D7	OESSEL	O	—	—	PU	H	DRAM swithing signal output (H: DRAM1 select).
27	D8 (P30)	DD0	I/O	—	—	—	—	Data bus.
28	D9 (P31)	DD1	I/O	—	—	—	—	Data bus.
29	D10 (P32)	DD2	I/O	—	—	—	—	Data bus.
30	D11 (P33)	DD3	I/O	—	—	—	—	Data bus.
31	D12 (P34)	DD4	I/O	—	—	—	—	Data bus.
32	D13 (P35)	DD5	I/O	—	—	—	—	Data bus.
33	D14 (P36)	DD6	I/O	—	—	—	—	Data bus.
34	D15 (P37)	DD7	I/O	—	—	—	—	Data bus.
35	Vcc	Vcc	I	—	—	+5V	—	Connect with power supply (+5V).
36	P10/A0	DA0	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
37	P11/A1	DA1	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
38	P12/A2	DA2	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
39	P13/A3	DA3	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
40	P14/A4	DA4	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
41	P15/A5	DA5	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
42	P16/A6	DA6	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
43	P17/A7	DA7	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
44	Vss	Vss	I	—	—	+5V	—	Connect with power supply (+5V).
45	P20/A8	DA8	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
46	P21/A9	DA9	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
47	P22/A10	DA10	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
48	P23/A11	DA11	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
49	P24/A12	DA12	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).

Pin No.	Terminal Name	Symbol	I/O	Det	Res	Ext	Ini	Function
50	P25/A13	DA13	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
51	P26/A14	DA14	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
52	P27/A15	DA15	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
53	P50/A16	DA16	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
54	P51/A17	DA17	O	—	—	NC	—	Address bus (Not used).
55	P52/A18	DA18	O	—	—	NC	—	Address bus (Not used).
56	P53/A19	DA19	O	—	—	NC	—	Address bus (Not used).
57	Vss	Vss	I	—	—	OV	—	Connect with ground (0V).
58	P60!/WAIT	TEST60	O	—	—	NC	H	Non connect
59	P61!/BREQ	!ADRST	O	—	—	PD	L	Reset signal output for AD converter.
60	P62!/BACK	!XRST	O	—	—	PD	L	Reset signal output for peripheral LSI.
61	φ	MONI	O	—	—	NC	—	System clock monitor output.
62	!STBY	!STBY	I	—	—	PU	—	Pull up, hardware stand-by mode (not used).
63	!RES	!DRST	I	—	L	—	—	Reset input.
64	NMI	!NMI	I	Ed	—	PU	—	Pull up, non-maskable interrupt (not used).
65	Vss	Vss	I	—	—	OV	—	Connect with ground (0V).
66	EXTAL	EXAL	I	—	—	—	—	Connect with crystal oscillator (16MHz).
67	XTAL	XTAL	I	—	—	—	—	Connect with crystal oscillator (16MHz). (enable to input external clock.)
68	Vcc	Vcc	I	—	—	+5V	—	Connect with power supply (+5V).
69	!AS (P63)	!AS	O	—	—	—	—	Address strobe output (L: valid).
70	!RD (P64)	!RD	O	—	—	—	—	Read signal output (L: read).
71	!HWR (P65)	!WR	O	—	—	—	—	Upward byte write signal output (L: valid).
72	!LWR (P66)	!LWR	O	—	—	NC	H	Downward byte write signal output, normally "H".
73	MD0	MD0	I	—	—	PU	—	Operation mode setting input (H: mode 5).
74	MD1	MD1	I	—	—	PD	—	Operation mode setting input (L: mode 5).
75	MD2	MD2	I	—	—	PU	—	Operation mode setting input (H: mode 5).
76	AVcc	Vcc	I	—	—	+5V	—	Connect with power supply (+5V).
77	VREF	Vcc	I	—	—	+5V	—	Connect with power supply (+5V).
78	P70/AN0	RECSW	I	Lv	—	PU	—	Head/Loading position detection signal input.
79	P71/AN1	PLAYSW	I	Lv	—	PU	—	Head/Loading position detection signal input.
80	P72/AN2	LOADSW	I	Lv	—	PU	—	Disc position detection input (L: eject OK).
81	P73/AN3	INSW	I	Lv	—	PU	—	Inner circle SW detection signal input (L: ON).
82	P74/AN4	REFLECT	I	Lv	—	PU	—	Reflection rate detection signal input (L: high reflection).
83	P75/AN5	PROTECT	I	Lv	—	PU	—	Write prohibition detection signal input (L: enable).
84	P76/AN6/DA0	SENS	I	Lv	—	—	—	Sense signal input.
85	P77/AN7/DA1	FOK	I	Lv	—	—	—	Focus OK signal input (H: focus OK).
86	AVss	Vss	I	—	—	OV	—	Connect with ground (0V).
87	P80!/RFSH!/IRQ0	!SYSACK	I	EG	—	PD	—	Communication system microcomputer acknowledge signal input between microcomputer.
88	P81!/CS3!/IRQ1	!DQSY	I	EG	—	—	—	MD format sub code Q sync interrupt input when digital source is CD at SCR, MD of U-bit CD.
89	P82!/CS2!/IRQ2	!XINT	I	EG	—	—	—	CXD-2536 internal status interrupt input.
90	P83!/CS1!/IRQ3	!SQSY	I	EG	—	—	—	Sub Q/ADIP sync interrupt input.
91	P84/ICSO	R/IW	I	Lv	—	PU	—	Trigger signal input when starting communication between microcomputer (L: starting, L: write/H: read).
92	Vss	Vss	I	—	—	OV	—	Connect with ground (0V).
93	PA0/TP0/ITEND0/TCLKA	SDA	I/O	—	—	PU	H	Serial data input/output for EEPROM control.
94	PA1/TP1/ITEND1/TCLKB	SCL	I/O	—	—	PU	H	Serial clock input/output for EEPROM control.
95	PA2/TP2/TIOCA0/TCLKC	!SHCK	I	EG	—	PU	—	Track out detection signal interrupt input.
96	PA3/TP3/TIOCB0/TCLKD	DIGRST	O	—	—	PD	L	Reset signal output for CXD2535.
97	PA4/TP4/TIOCA1/ICS6	CSEXROM	O	—	—	PU	H	Chip select signal output for external ROM.
98	PA5/TP5/TIOCB1/ICS5	DISCIN	I	Lv	—	PU	—	Disc set detection signal input.
99	PA6/TP6/TIOCA2/ICS4	CSEXSRAM	O	—	—	—	H	Chip select signal output for external SRAM.
100	PA7/TP7/TIOCB2	WESEL	O	—	—	PU	H	Write enable switching signal (H: DRM1 selection).

CXD2536CR (Main Unit) (IC102)

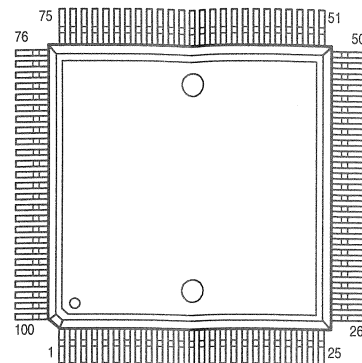


CXD2536CR Terminal Function

Pin No.	Symbol	I/O		Function
1	VDD			Power supply terminal.
2	SWDT	I		Microcomputer serial interface data input.
3	SCLK	I		Microcomputer serial interface shift clock input.
4	XLAT	I		Microcomputer serial interface latch input (L: Latch).
5	SRDT	O	H, Z, L	Microcomputer serial interface data output.
6	SENS	O	H, Z, L	Internal status output terminal according to microcomputer serial interface address.
7	SMD0	I		Control mode of the serial command.
8	SMD1	I		Control mode of the serial command.
9	XINT	O	H, L	Interrupt request output terminal (L: Interrupt status).
10	RCPB	I		H: Recording mode, L: Playback mode.
11	WRMN	I		H: Wirting mode, L: Monitor mode.
12	TX	I		Enable signal input terminal of the recording data output (H: Enable).
13	Vss			Connect with ground.
14	TST0	I		Test terminal, connect with ground.
15	TST1	I		Test terminal, connect with ground.
16	TST2	I		Test terminal, connect with ground.
17	XRST	I		Reset input (L: Reset).
18	TS0	I		Test terminal, connect with ground.
19	TS1	I		Test terminal, connect with ground.
20	TS2	I		Test terminal, connect with ground.
21	TS3	I		Test terminal, connect with ground.
22	TST3	I		Test terminal, connect with ground.
23	TST4	I		Test terminal, connect with ground.
24	TST5	I		Test terminal, connect with ground.
25	Vss			Connect with ground.
26	ALRCPB	O	H, L	ATRAC block recording/playback mode output (H: Recording mode, L: Playback mode).
27	TST6	O		Test terminal, open.
28	TST7	O		Test terminal, open.
29	TST8	O		Test terminal, open.
30	TST9	O		Test terminal, open.
31	TST10	O		Test terminal, open.
32	TST11	O		Test terminal, open.
33	TST12	O		Test terminal, open.
34	TST13	O		Test terminal, open.
35	TST14	O		Test terminal, open.
36	OSCO	O		Crystal oscillator circuit output terminal (inverting output of OSCI terminal).
37	OSCI	I		Crystal oscillator circuit input terminal (1024 Fs = 45.1584 MHz).
38	Vss			Connect with ground.
39	TST15	O		Test terminal, open.
40	TST16	O		Test terminal, open.
41	DOUT	O	H, L	REC monitor output/decode audio data output.
42	ADIN	I		Analog recording input terminal (connect with external A/D converter output).
43	ABCK	O	H, L	XBCK (64 Fs) output terminal to the external audio block.
44	ALRCK	O	H, L	LRCK (Fs) output terminal to the external audio block.
45	SA2	O	H, L	SRAM address bus.
46	SA1	O	H, L	SRAM address bus.
47	SA0	O	H, L	SRAM address bus.
48	A11	O	H, L	RAM address bus.
49	A10	O	H, L	RAM address bus.
50	Vss			Connect with ground.
51	VDD			Power supply terminal.
52	A03	O	H, L	RAM address bus.
53	A02	O	H, L	RAM address bus.

Pin No.	Symbol	I/O		Function
54	A01	O	H, L	RAM address bus.
55	A00	O	H, L	RAM address bus.
56	A04	O	H, L	RAM address bus.
57	A05	O	H, L	RAM address bus.
58	A06	O	H, L	RAM address bus.
59	A07	O	H, L	RAM address bus.
60	A08	O	H, L	RAM address bus.
61	XOE	O	H, L	RAM output enable signal.
62	XCAS	O	H, L	DRAM CAS output.
63	Vss			Connect with ground.
64	XCS	O	H, L	RAM chip select (H: DRAM, L: SRAM).
65	A09	O	H, L	RAM address bus.
66	XRAS	O	H, L	DRAM RAS output.
67	XWE	O	H, L	RAM write enable.
68	D1	I/O	H, L	RAM data bus.
69	D0	I/O	H, L	RAM data bus.
70	D2	I/O	H, L	RAM data bus.
71	D3	I/O	H, L	RAM data bus.
72	D4	I/O	H, L	RAM data bus.
73	D5	I/O	H, L	RAM data bus.
74	D6	I/O	H, L	RAM data bus.
75	Vss			Connect with ground.
76	D7	I/O	H, L	RAM data bus.
77	ERR	I/O	H, L	Data input/output terminal to RAM for C2P0.
78	EXTC2R	I		RAM select signal for C2P0 (H: used, L: Not used).
79	BUSY	O	H, L	RAM access busy signal output (H: RAM access).
80	EMP	O	H, L	Indication signal output when ATRAC data is empty or before the data is full.
81	FUL	O	H, L	Indication signal output when ATRAC data is full or before the data is empty.
82	EQL	O	H, L	ATRAC data empty (H: ASC = DSC).
83	MDLK	O	H, L	Indicates main/sub of recording/playback data (H: sub or linking, L: main).
84	CPSY	O	H, L	Internal sink output.
85	CTMD1	O	H, L	Internal count mode output.
86	CTMD0	O	H, L	Internal count mode output.
87	SPO	O	H, L	512 Fs output.
88	Vss			Connect with ground.
89	MDSY	O	H, L	Sink detection output of main data.
90	LRCK	I		LRCK (Fs) input terminal from FDM encoder/decoder.
91	BCK	I		BCK (64 Fs) input terminal from EFM encoder/decoder.
92	C2PO	I		C2P0 input terminal from EFM encoder/decoder.
93	DATA	I/O	H, L	Data input/output from EFM encoder/decoder.
94	DIDT	I		Digital recording input terminal.
95	DODT	O	H, L	REC monitor output/decode audio data output.
96	DIRCPB	O	H, L	Recording/playback mode output to EFM encoder/decoder (H: recording mode, L: playback mode).
97	MIN	I		External monitor signal input terminal.
98	TST17	I		Test terminal, connect with VDD.
99	TST18	O		Test terminal, open.
100	Vss			Connect with ground.

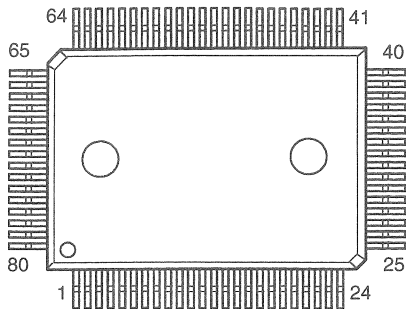
- Between OSCI and OSCO terminal, incorporated an internal feedback impedance.
- When not using RAM for C2P0 (EXT2CR = "L"), open ERR terminal.
- When XRST terminal is "L", 512 Fs output signal from SPO terminal will be stopped and become L level.

MN1020015-1 (Main Unit)
(IC103)

MN1020015 Terminal Function

Pin No.	Terminal Name	Symbol	I/O	DET	Ext	Ini	Res	Function
1	A23	A23	O	—	—	—	L	Address bus 23
2	A22	A22	O	—	—	—	L	Address bus 22
3	A21	A21	O	—	—	—	L	Address bus 21
4	A20	A20	O	—	—	—	L	Address bus 20
5	A19	A19	O	—	—	—	L	Address bus 19.(Non connection).
6	A18	A18	O	—	—	—	L	Address bus 18.
7	A17	A17	O	—	—	—	L	Address bus 17.
8	A16	A16	O	—	—	—	L	Address bus 16.
9	A15	A15	O	—	—	—	L	Address bus 15.
10	A14	A14	O	—	—	—	L	Address bus 14.
11	A13	A13	O	—	—	—	L	Address bus 13.
12	A12	A12	O	—	—	—	L	Address bus 12.
13	A11	A11	O	—	—	—	L	Address bus 11.
14	A10	A10	O	—	—	—	L	Address bus 10.
15	A09	A9	O	—	—	—	L	Address bus 09.
16	A08	A8	O	—	—	—	L	Address bus 08.
17	A07	A7	O	—	—	—	L	Address bus 07.
18	A06	A6	O	—	—	—	L	Address bus 06.
19	A05	A5	O	—	—	—	L	Address bus 05.
20	A04	A4	O	—	—	—	L	Address bus 04.
21	A03	A3	O	—	—	—	L	Address bus 03.
22	A02	A2	O	—	—	—	L	Address bus 02.
23	A01	A1	O	—	—	—	L	Address bus 01.
24	A00	A0	O	—	—	—	L	Address bus 00.
25	IRE	!OE	O	—	—	—	—	Read enable output terminal.
26	!WEL	!WEL	O	—	—	—	—	Not used (open).
27	!WHE	!WE	O	—	—	—	—	Write enable output terminal (D08~D15).
28	P00 D00	CCLK	O	—	—	H	—	Clock signal for FL tube, LED, parallel out, pitch control.
29	P01 D01	CDAT	O	—	—	H	—	Data signal for FL tube, LED, parallel out and pitch control.
30	P02 D02	!PSTB0	O	—	Pu	H	H	Parallel output strobe 0 signal.
31	P03 D03	SYSRSTO	O	—	Pu	—	H	System reset output (L: reset).
32	P04 D04	TRCLO	O	Lv	—	H	—	Digital output transmitter strobe 0 signal.
33	P05 D05	LSTB	O	Lv	Pu	H	H	LED driver strobe.
34	P06 D06	FLCS	O	Lv	Pu	H	H	FL driver chip select.
35	P07 D07	!P. RST	O	Lv	Pd	L	L	Power ON reset output (L: RESET).
36	D08	D0	I/O	—	—	—	—	Data bus 0 (F memory, I/O, SMPTE).
37	D09	D1	I/O	—	—	—	—	Data bus 1 (F memory, I/O, SMPTE).
38	D10	D2	I/O	—	—	—	—	Data bus 2 (F memory, I/O, SMPTE).
39	D11	D3	I/O	—	—	—	—	Data bus 3 (F memory, I/O, SMPTE).
40	D12	D4	I/O	—	—	—	—	Data bus 4 (F memory, I/O, SMPTE).

Pin No.	Terminal Name	Symbol	I/O	DET	Ext	Ini	Res	Function
41	D13	D5	I/O	—	—	—	—	Data bus 5 (F memory, I/O, SMPTE).
42	D14	D6	I/O	—	—	—	—	Data bus 6 (F memory, I/O, SMPTE).
43	D15	D7	I/O	—	—	—	—	Data bus 7 (F memory, I/O, SMPTE).
44	P10 IRAS	TRCK	O	Ed	—	L	—	Transmitter control clock.
45	P11 !CAS0/CS0	TRDAT	O	Lv	—	L	—	Transmitter control data.
46	P12 !CAS1/CS1	ROMCLK	O	Ed	Pu	L	H	EEPROM clock output signal.
47	P13 !CAS2/CS2	ROMDAT	I/O	Lv	Pu	—	H	EEPROM data input/output signal (initial value is for input).
48	P14 !CAS3/CS3	RESERVE	O	—	—	L	—	Not used.
49	VSS	VSS	—	—	—	—	—	GND (0v)
50	VDD	VDD	—	—	—	—	—	Power supply (+5.0V).
51	!RST	!RST	I	—	—	—	—	Reset input terminal.
52	!BUSRQ	!BUSRQ	I	—	—	—	—	Bus request signal (Not used, fixed at +5.0V)
53	!BUSGT	!BUSGT	O	—	—	—	—	Bus request enable terminal (Not used, open).
54	!WORD	!WORD	I	Lv	5V	—	H	Data bus width selection terminal (8 bit mode, +5V).
55	P20 AD0	RESERVE	I	—	Pu	—	H	Not used.
56	P21 AD1	RESERVE	I	—	Pu	—	H	Not used.
57	P22 AD2	RESERVE	I	—	Pu	—	H	Not used.
58	P23 AD3	RESERVE	O	—	—	L	—	Not used.
59	AVDD	AVDD	—	—	—	—	—	Power supply (+5.0V).
60	AVSS	AVSS	—	—	—	—	—	GND (0v)
61	P30 RTOA0	F0	I	Lv	Pu	—	H	Sampling frequency detection signal for identifying F0, F1, F2 pattern.
62	P31 RTOA1/ADTRG	F1	I	Lv	Pu	—	H	Sampling frequency detection signal for identifying F0, F1, F2 pattern.
63	P32 RTOA2/VREFL	F2	I	Lv	Pu	—	H	Sampling frequency detection signal for identifying F0, F1, F2 pattern.
64	P33 RTOA3/VREFH	!DRST	O	Lv	Pd	L	L	Drive microcomputer reset signal (L: reset).
65	P34 RTOB0/AD4	!D. PGM	O	Lv	Pu	H	H	Drive microcomputer program rewriting signal (L: rewriting).
66	P35 RTOB1/AD5	INMON	O	Lv	—	—	—	Audio input, monaural/stereo switching signal (H: monaural).
67	P36 RTOB2/AD6/TC16C	F. SELECT	O	—	—	—	—	Selection signal for Pin61, 62 and 63 pattern.
68	P37 RTOB3/AD7/TC17C	RESERVE	O	—	—	L	—	Not used.
69	P40 SB10	RXD	I	—	—	—	—	Receiving line for external serial communication.
70	P41 SB00	TXD	O	—	—	—	—	Transmitting line for external serial Communication.
71	P42 SB11	SIN	I	Lv	Pu	—	H	Receiving line from the microcomputer communication (System microcomputer reference).
72	P43 SB01	SOUT	O	Lv	Pu	H	H	Transmitting line to the microcomputer communication (System microcomputer reference).
73	P50 IRQ1/TC106B	ACK	I	Ed	Pd	—	—	ACK input signal from the microcomputer communication (interruption).
74	P51 IRQ1/TC107B	KBIRQ	I	Ed	Pu	H	—	Keyboard TXE/RXE RDY interrupt input.
75	P52 IRQ3/TC108B	TMSYNC	I	Ed	Pu	L	—	Time code sync input (interruption).
76	P53 IRQ3	RESERVE	I	—	Pu	—	H	Not used.
77	!KI0	!TRSLA	I	Ed	Pu	—	—	Track select pulse input terminal (interruption).
78	!KI1	!TRSLB	I	Ed	Pu	—	—	Track select pulse inverting input terminal (interruption).
79	!KI2	CLKSEL	O	Lv	Pu	L	L	Pitch ON/OFF switching signal. (H: pitch ON)
80	!KI3	RESERVE	O	Pd	—	L	L	Not used.
81	!KI4	R!/W	O	Lv	Pu	H	H	Read/write switching signal for microcomputer communication (H: read).
82	!KI5	SYSACK	O	Ed	Pd	L	L	System microcomputer ACK output signal for the microcomputer communication.
83	!KI6	RESERVE	O	—	Pu	H	H	Not used.
84	!KI7	OUTMON	O	Lv	—	L	—	Audio output, monaural/stereo switching signal (H: monaural).
85	TCI00	ERF	I	Lv	—	—	H	Digital audio interface receiving error signal.
86	TCI01	PLAYSW	I	Lv	Pu	—	H	Head/Loading position detect signal.
87	TCI02	PROTECT	I	Lv	Pu	—	H	Write protect input signal (H: record inhibition).
88	TCI03/SBT0	CO	I	Lv	Pu	—	H	PRO/COS format detection signal.
89	TCI04/SBT1	UCLK	O	Ed	Pu	H	H	Clock output for the microcomputer communication.
90	TCI6A	!DRVTRY	I	Lv	Pu	—	H	Drive microcomputer status input.
91	TCI07A	DISC IN	I	—	Pu	—	H	Disc set detecting switch signal (L: disc set).
92	TCI08A	RESERVE	O	—	—	L	—	Not used.
93	SYSCLK	SYSCLK	O	—	—	—	H	System clock output terminal (a half of OSCI frequency).
94	VDD	VDD	—	—	—	—	—	Power supply (+5.0V).
95	!XI	!XI	I	—	—	—	—	GND (0V).
96	X0	X0	O	—	—	—	—	Open.
97	VDD	VDD	—	—	—	—	—	Power supply (+5.0V).
98	!OSCI	!OSCI	I	—	—	—	—	System clock input (12.288 MHz).
99	OSCO	OSCO	O	—	—	—	—	System clock output (12.288 MHz).
100	VSS	VSS	—	—	—	—	—	GND (0v).

MB89363BH (Main Unit)
(IC104)

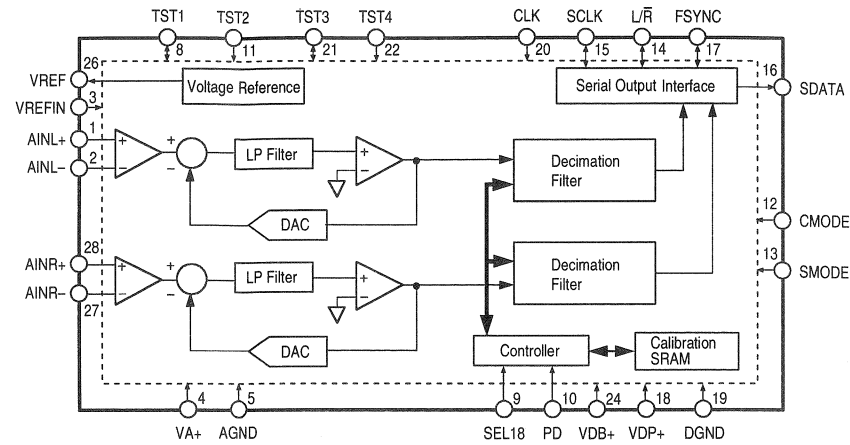
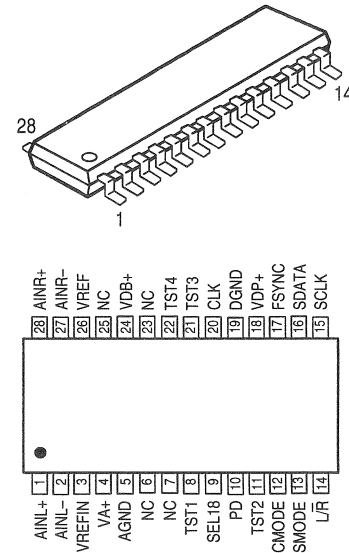


MB89363BH Terminal Function

Pin No.	Terminal Name	Symbol	Address	I/O	DET	Ext	Ini	Res	Function
1	P34	RESERVE	0001	I	Lv	Pu	—	H	Not used.
2	P35	RESERVE	0001	I	Lv	Pu	—	H	Not used.
3	P36	RESERVE	0001	I	—	Pu	—	H	Not used.
4	P37	RESERVE	0001	I	—	Pu	—	H	Not used.
5	!W	!WE		I	—	—	—	—	Data writing signal, connect with the microcomputer "!WR".
6	RST	IP. RST		I	—	—	—	—	Reset signal input (L: reset).
7	N.C.	N.C.		—	—	—	—	—	Open.
8	N.C.	N.C.		—	—	—	—	—	Open.
9	RH/IRL	IRL		I	—	—	—	—	Reset polarity: select active low (fixed at 0V).
10	N.C.	N.C.		—	—	—	—	—	Open.
11	OUS/IINS	OUS		I	—	—	—	—	Port 0 and 3 read value selection (external terminal value read, fixed at +5V).
12	DB0	D0		I	—	—	—	T	Data bus 0 (Connect with the microcomputer data bus D0).
13	DB1	D1		I	—	—	—	T	Data bus 1 (Connect with the microcomputer data bus D1).
14	DB2	D2		I	—	—	—	T	Data bus 2 (Connect with the microcomputer data bus D2).
15	DB3	D3		I	—	—	—	T	Data bus 3 (Connect with the microcomputer data bus D3).
16	DB4	D4		I	—	—	—	T	Data bus 4 (Connect with the microcomputer data bus D4).
17	DB5	D5		I	—	—	—	T	Data bus 5 (Connect with the microcomputer data bus D5).
18	DB6	D6		I	—	—	—	T	Data bus 6 (Connect with the microcomputer data bus D6).
19	DB7	D7		I	—	—	—	T	Data bus 7 (Connect with the microcomputer data bus D7).
20	PO7	PDI7	0010	I	—	Pu	—	H	Parallel input 7 (FADER, START, COM).
21	PO6	PDI6	0010	I	—	Pu	—	H	Parallel input 6 (SERCH, REW, COM).
22	PO5	PDI5	0010	I	—	Pu	—	H	Parallel input 5 (SERCH, FWD, COM).
23	PO4	PDI4	0010	I	—	Pu	—	H	Parallel input 4 (TRACK-, COM).
24	N.C.	N.C.		—	—	—	—	—	Open.
25	PO3	PDI3	0010	I	—	Pu	—	H	Parallel input 3 (TRACK+, COM).
26	PO2	PDI2	0010	I	—	Pu	—	H	Parallel input 2 (STDBY/CUE, COM).
27	PO1	PDI1	0010	I	—	Pu	—	H	Parallel input 1 (PAUSE, COM).
28	PO0	PDI0	0010	I	—	Pu	—	H	Parallel input 0 (PLAY, COM).
29	!CS1	!IOCS1		I	—	—	—	—	Chip selection 1 input.
30	GND	GND		—	—	—	—	—	—

Pin No.	Terminal Name	Symbol	Address	I/O	DET	Ext	Ini	Res	Function
31	RSLCT1	RSLCT1		I	—	—	—	—	Access object selection 1 signal (connect with the microcomputer address bus A17).
32	RSLCT0	RSLCT0		I	—	—	—	—	Access object selection 0 signal (connect with the microcomputer address bus A16).
33	N.C.	N.C.		—	—	—	—	—	Open.
34	P27	PCSTB	0110	O	Lv	Pu	H	H	Strobe signal for pitch control.
35	P26	RESERVE	0110	O	Lv	Pd	L	L	Not used.
36	P25	RESERVE	0110	O	Lv	Pu	H	H	Not used.
37	P24	!VCOON	0110	O	Lv	Pu	H	H	VCO circuit ON/OFF control signal (L: VCO ON).
38	P20	!TRRSTO	0110	O	Lv	Pd	L	L	Transmitter reset output signal for output (YM3437C) (L: reset).
39	P21	!DOUTSEL	0110	O	Lv	Pd	L	L	Digital out select switching signal (L: PRO).
40	P22	!FSNOO	0110	O	Lv	Pd	L	L	44.1 kHz through input switching signal (H: 44.1 kHz through).
41	N.C.	N.C.		—	—	—	—	—	Open.
42	N.C.	N.C.		—	—	—	—	—	Open.
43	P23	FSSEL	0110	O	Lv	Pd	L	L	32k/48k switching signal (L:32 kHz).
44	P10	AMUTE	1010	O	Lv	Pu	H	H	Analog mute control signal (H: mute ON).
45	P11	DMUTE	1010	O	Lv	Pu	H	H	Mute signal for transmitter (YM3437C) output system (H: mute ON).
46	P12	RESERVE	1010	O	—	Pu	H	H	Not used.
47	P13	KO0	1010	O	—	Pu	H	H	Key scan output.
48	P14	KO1	1010	O	—	—	—	T	Key scan output.
49	P15	KO2	1010	O	—	—	—	T	Key scan output.
50	P16	EOM TALLY	1010	O	—	—	—	T	Parallel output (EOM).
51	P17	DYCON	1010	O	—	Pu	—	H	RS422 daisy chain control signal (L: high impedance).
52	N.C.	N.C.		—	—	—	—	—	Open.
53	Vcc	AVDD		—	—	—	—	—	—
54	P47	PLAY MODE	1001	I	—	Pu	—	H	Play mode switching signal (H: single)
55	P46	!PUSH	1001	I	—	Pu	—	H	Track selector "push" input.
56	P45	RESERVE	1001	I	—	Pu	—	H	Not used.
57	P44	RESERVE	1001	I	—	Pu	—	H	Not used.
58	P43	RESERVE	1001	I	—	Pu	—	H	Not used.
59	P42	RESERVE	1001	I	—	Pu	—	H	Not used.
60	P41	RESERVE	1001	I	—	Pu	—	H	Not used.
61	P40	RESERVE	1001	I	—	Pu	—	H	Not used.
62	P53	KI3	0101	I	—	Pu	—	H	Key input.
63	N.C.	N.C.		—	—	—	—	—	Open.
64	N.C.	N.C.		—	—	—	—	—	Open.
65	P52	KI2	0101	I	—	Pu	—	H	Key input.
66	P51	KI1	0101	I	—	Pu	—	H	Key input.
67	P50	KI0	0101	I	—	Pu	—	H	Key input.
68	P54	RESERVE	0101	I	—	Pu	—	H	Not used.
69	P55	RESERVE	0101	I	—	Pu	—	H	Not used.
70	P56	RESERVE	0101	I	—	Pu	—	H	Not used.
71	P57	RESERVE	0101	I	—	Pu	—	H	Not used.
72	N.C.	N.C.		—	—	—	—	—	Open.
73	N.C.	N.C.		—	—	—	—	—	Open.
74	GND	GND		—	—	—	—	—	—
75	!CS2	!IOCS2		I	—	—	—	—	Chip select 2 input.
76	!R	!OE		O	—	—	—	—	Data read signal, connect with the microcomputer "!OE".
77	P30	PDI8	0001	I	—	Pu	—	H	Parallel input 8 (REC, COM).
78	P31	PDI9	0001	I	—	Pu	—	H	Parallel input 9 (HOT, START, MODE) (L: HOT START).
79	P32	PDI10	0001	I	—	Pu	—	H	Parallel input 10.
80	P33	RESERVE	0001	I	Lv	Pu	—	H	Not used.

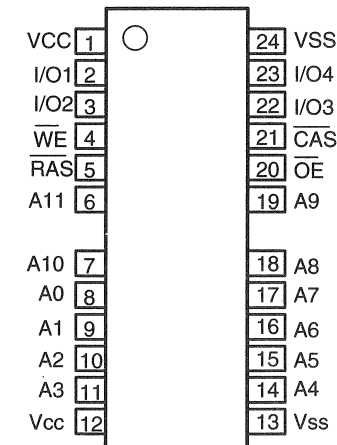
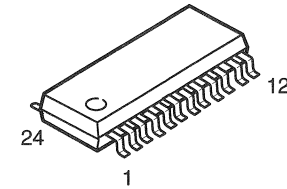
AK5340-VS-E1 (IC406)



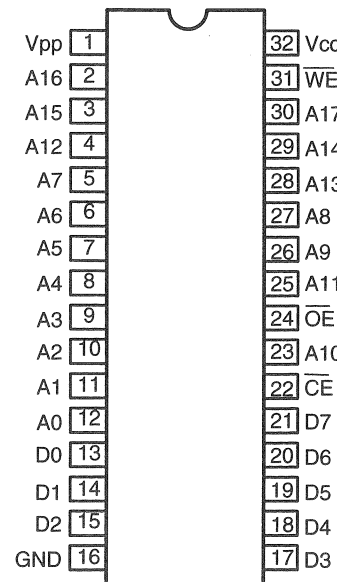
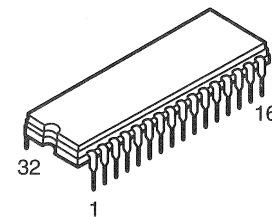
AK5340-VS-E1 Terminal Function

Pin No.	Symbol	I/O	Function
1	AINL+	I	Lch analog non-inverting input terminal.
2	AINL-	I	Lch analog inverting input terminal.
3	VREFIN	I	Reference voltage input terminal.
4	VA+	—	Analog power supply terminal (+5V).
5	AGND	—	Analog ground.
6	NC		
7	NC		
8	TST1		Test terminal, open.
9	SEL18	I	Output data length selection terminal (L : 16bit, H : 18bit).
10	PD	I	Power down terminal (H : power down mode).
11	TST2		Test terminal, open.
12	CMODE	I	Master clock selection terminal (L : CLK=256fs, H : CLK=384fs).
13	SMODE	I	Interface clock selection terminal (L : slave mode, H : master mode).
14	L/R	I/O	Input channel selection terminal.
15	SCLK	I/O	Serial data clock terminal.
16	SDATA	O	Serial data output terminal.
17	FSYNC	I/O	Frame sync clock terminal.
18	VDP+	—	Digital power supply terminal (+5V).
19	DGND	—	Digital ground.
20	CLK	I	Master clock input terminal (CMODE="H": 384fs,CMODE="L": 256fs).
21	TST3		Test terminal, open.
22	TST4		Test terminal, open.
23	NC		
24	VDB+	—	Digital power supply terminal (+5V), (silicon substrate potential).
25	NC		
26	VREF	O	Reference voltage output terminal (VA+, -2.6V).
27	AINR-	I	Rch analog inverting input terminal.
28	AINR+	I	Rch analog non-inverting input terminal.

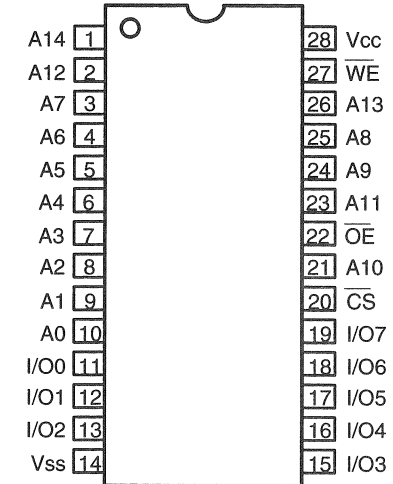
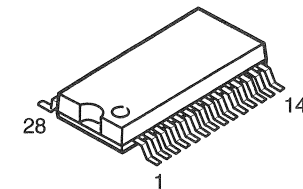
HM5116400ATS-7 (Main unit : IC109,110)



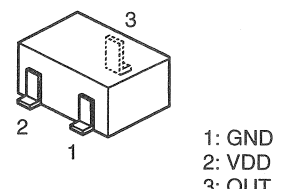
MX28F2000 PPC-90 (IC119) (Main unit)



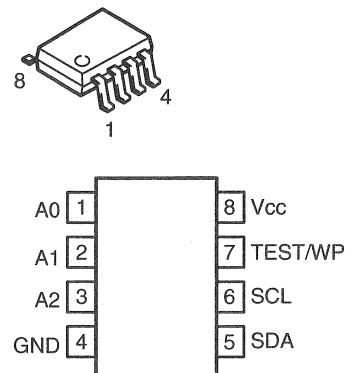
HM62256BLFP-8T (IC108) (Main unit)



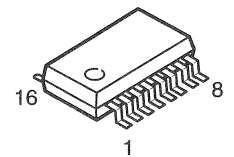
MN1382-S (TX) (IC116) (Main unit)



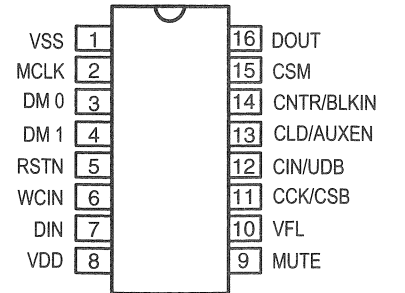
S-24C04AFJ (IC117) (Main unit)



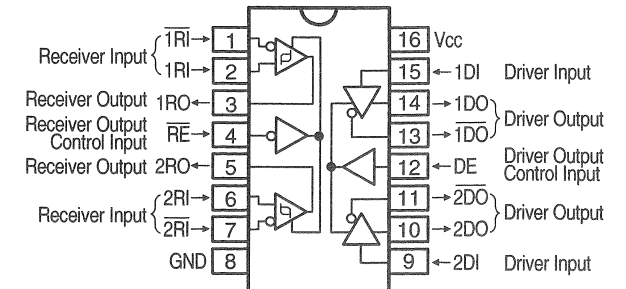
YM3437C-F (IC112) M5M34050FP (IC201) (Main unit)



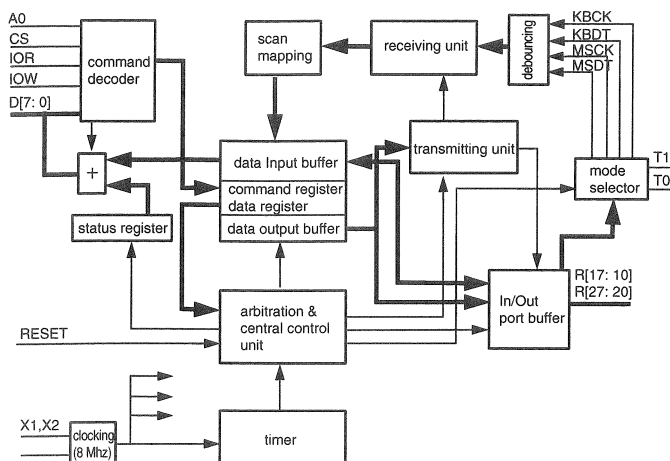
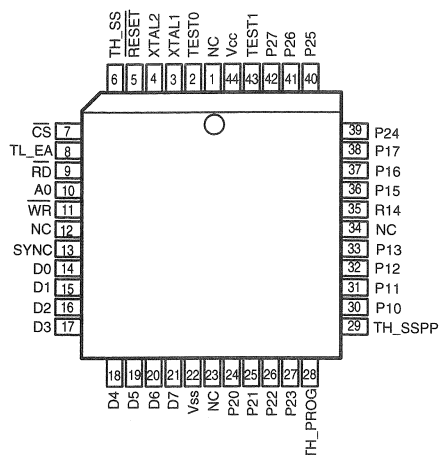
YM3437C-F



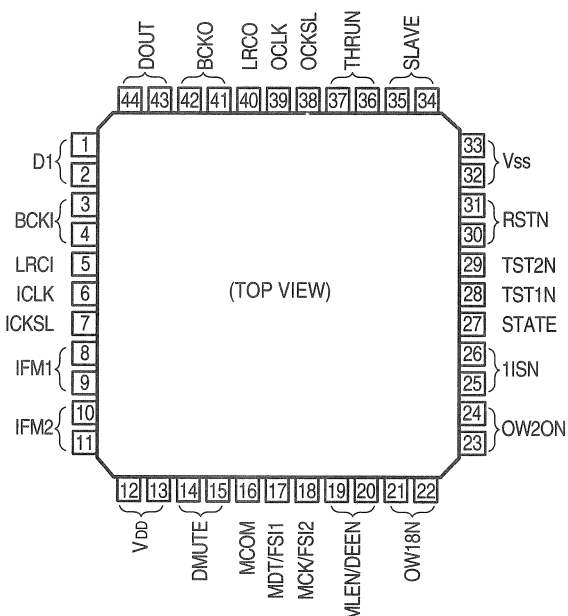
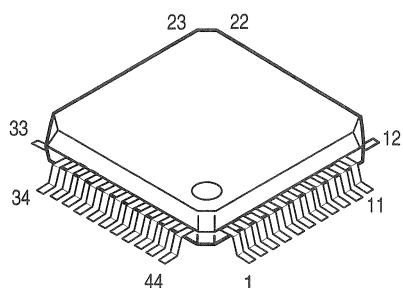
M5M34050FP



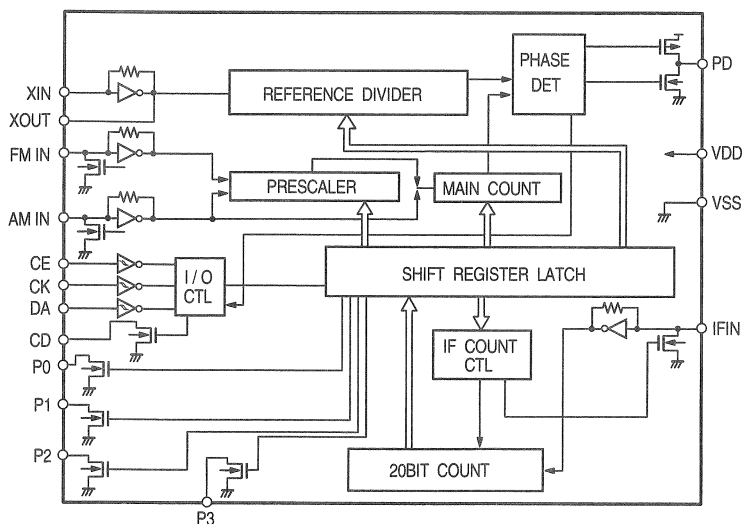
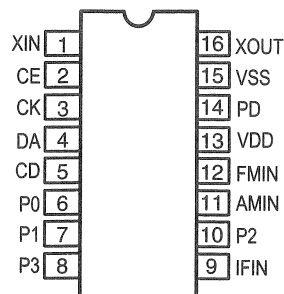
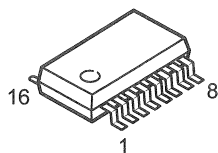
VT82C42V (Main unit: IC105)



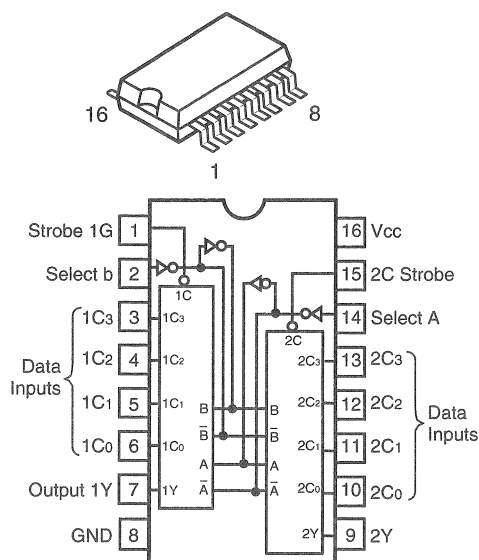
SM5844AF (Main unit: IC402)



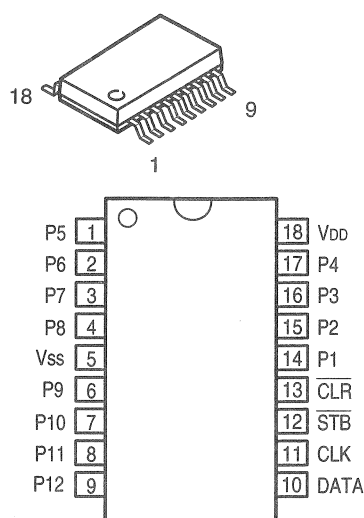
BU2618 (IC127) (Main unit)



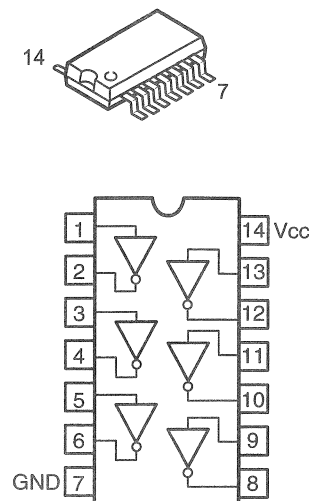
TC74ACT153FP (IC130)
HD74HCT153FP (IC410)
(Main unit)



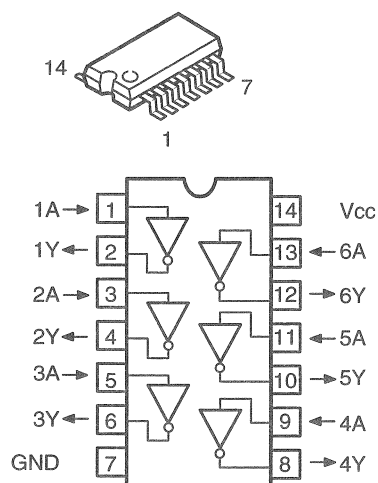
NJU3713GT1 (IC503,118)
(Main unit)



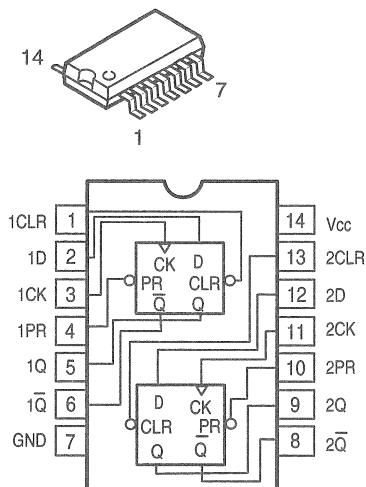
HD74LS07FP (IC129)
(Main unit)



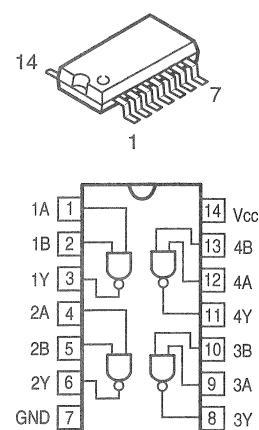
SN74LV04A (IC128)
(Main unit)



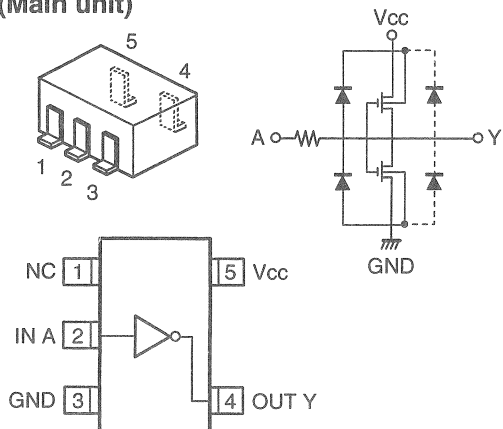
HD74HC74FP (IC123)
(Main unit)



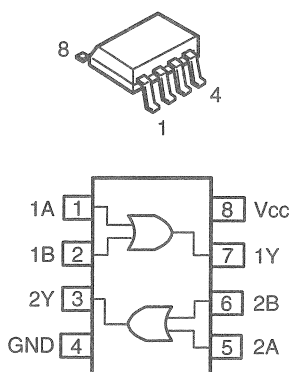
TC74HC00AF (IC111, 122)
(Main unit)



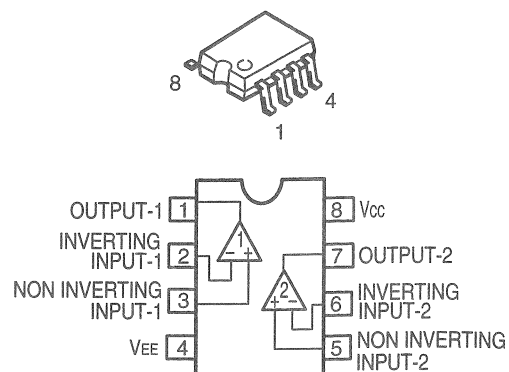
TC7SU04F (IC106, 124)
(Main unit)



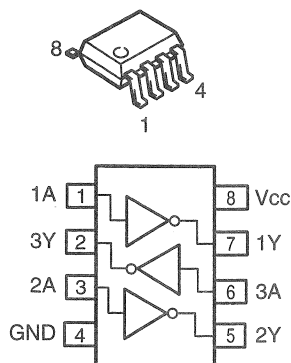
TC7W32F (IC114,115)
(Main unit)



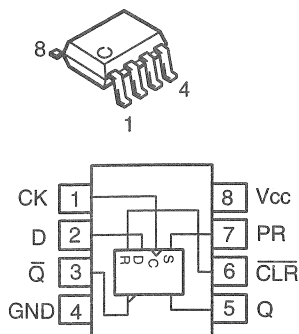
BA4510F (IC404,405)
(Main unit)



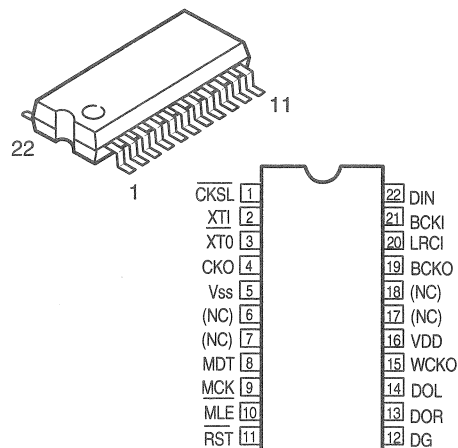
TC7WU04F (IC403,408,113,125)
(Main unit)



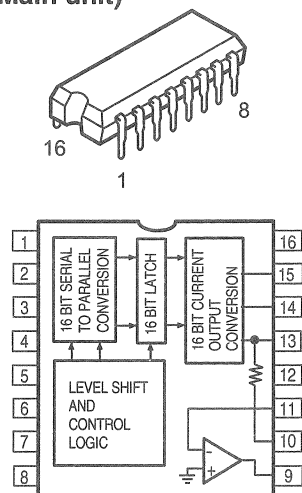
TC7W74F (IC121,409)
(Main unit)



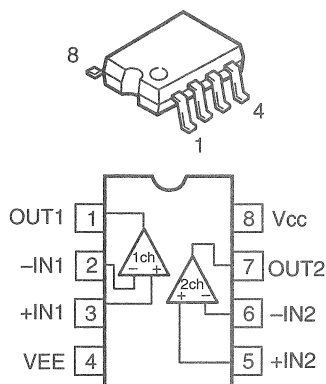
SM5841BS (IC407)
(Main unit)



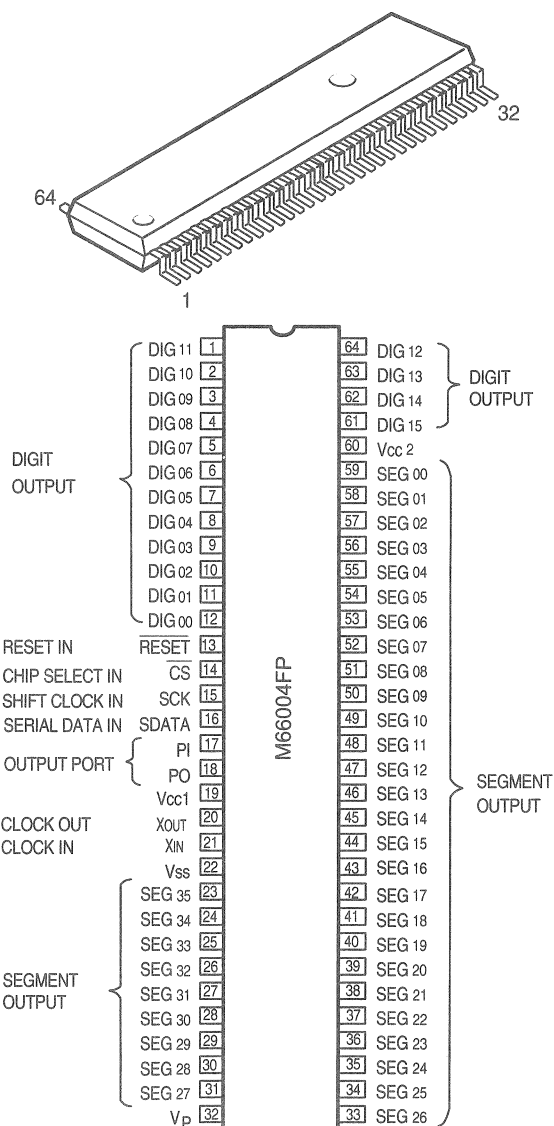
PCM61P (IC411,412)
(Main unit)



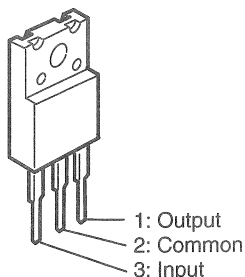
BA15218F (IC126,202,401,402,403)
NJM5532MD (IC203,204)
(Audio unit)



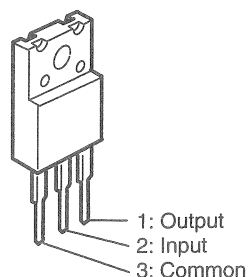
M66004FP (IC501)
(Display unit)



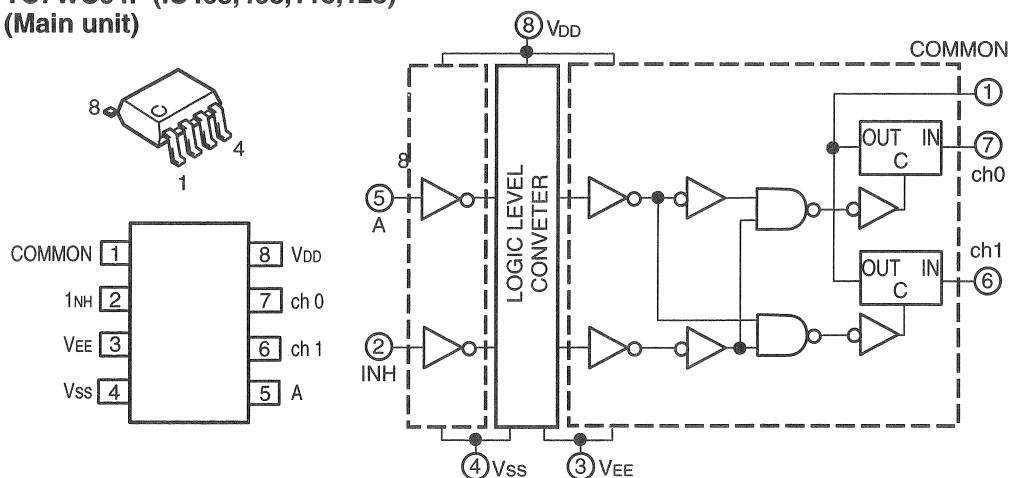
NJM7805FA (S) (IC101,102,103,105)
NJM78M05FA (S) (IC106)
NJM7806FA (S) (IC104)
NJM78M12FA (S) (IC108)
(Power unit)



NJM79M05FA (S) (IC107)
NJM79M12FA (IC109)
(Power unit)



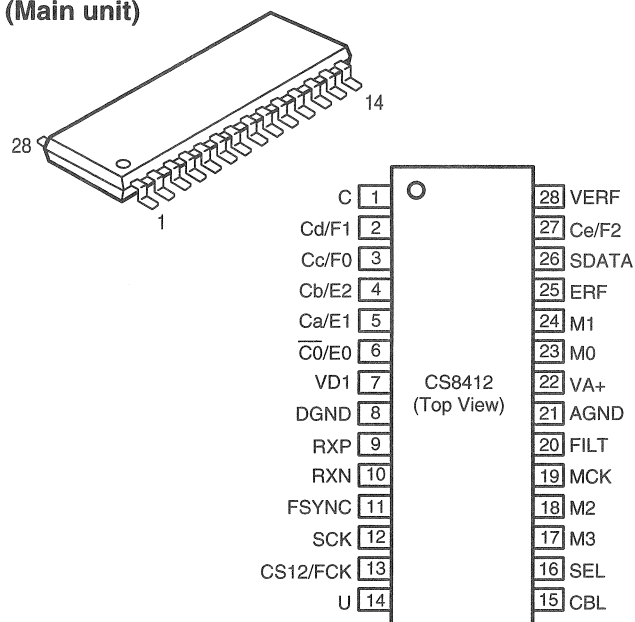
TC7WU04F (IC403,408,113,125)
(Main unit)



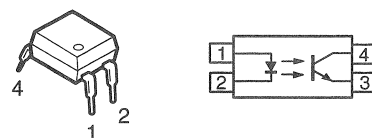
CONTROL C	IMPEDANCE BETWEEN IN-OUT
H	$0.5 \sim 5 \times 10^3 \text{ ohm}$
L	$\geq 10^3 \text{ ohm}$

CONTROL INPUT		ON CHANNEL
INH	A	
L	L	ch 0
L	H	ch 0
H	—	NONE

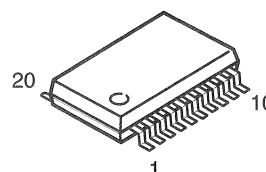
CS8412 (IC401)
(Main unit)



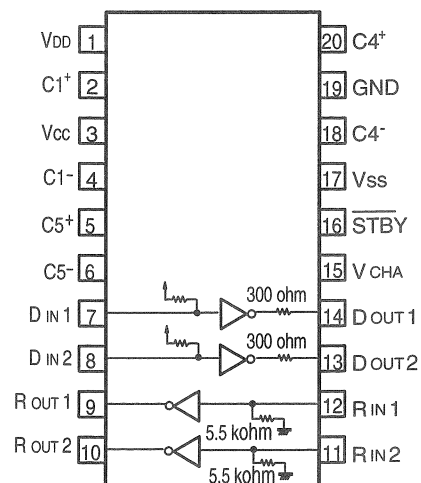
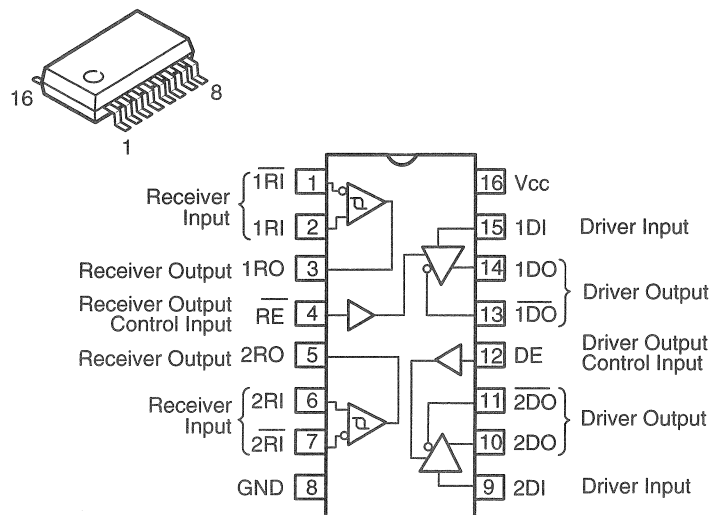
TLP521-1 (BL) (IC504)
(Remote unit)



μPD4721GS-GJG (IC502)
(Remote unit)

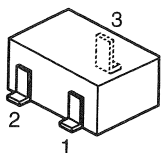


M5M34051FP (IC501)
(Remote unit)



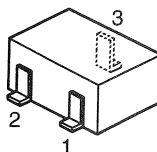
● TRANSISTOR

2SA1036K (S/R)
2SA1037K (S/R)



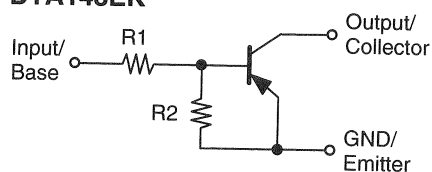
1: GND/Emitter
2: Input/Base
3: Output/Collector

DTA124XKA
DTA143EK
DTC114EK
DTC144TK



1: GND/Emitter
2: Input/Base
3: Output/Collector

DTA124XKA
DTA143EK



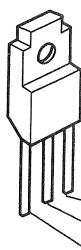
	R1	R2
DTA124XKA	22kohm	47kohm
DTA143EK	4.7kohm	4.7kohm

2SC1740 (S)



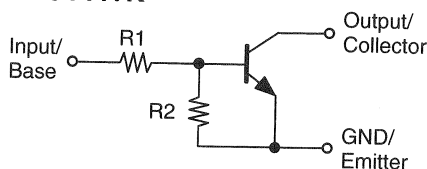
B: Base
C: Collector
E: Emitter

2SB1185 (E/F)



E: Emitter
C: Collector
B: Base

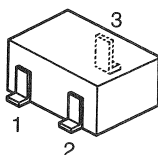
DTC114EK
DTC144TK



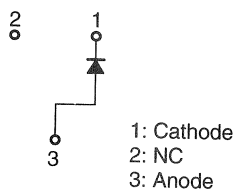
	R1	R2
DTC114EK	10kohm	10kohm
DTC144TK	47kohm	—

● DIODE

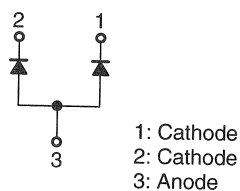
MA151A
MA151WA
MA151WK



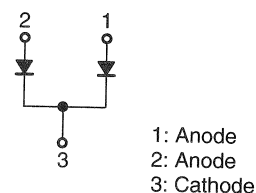
MA151A



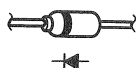
MA151WA



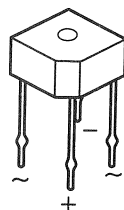
MA151WK



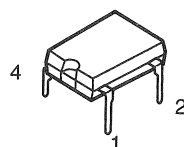
1SS270A



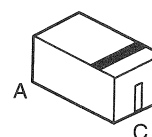
S4VB20F



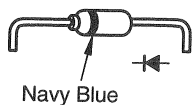
S1WB(A) 10



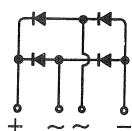
HVU17



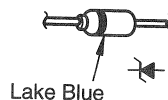
1SR139-200T-62



Navy Blue

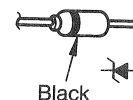


HZS7B-1



Lake Blue

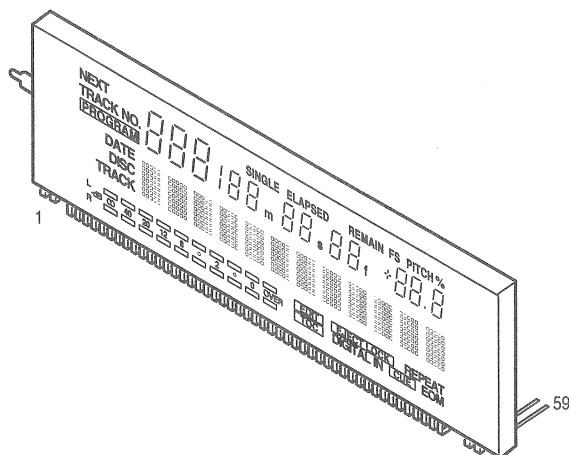
MTZJ39A



Black

● FL TUBE CL1842 (FL501)

Part No.: 393 8042 001



PIN ASSIGNMENT

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Connection	F1	F1	NP	NP	S35	S34	S33	S32	S31	S30	S29	S28	S27	S26	S25	S24	S23	S22	S21	S20	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10

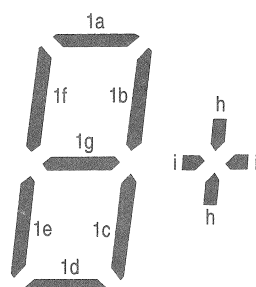
Pin No.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
Connection	S9	S8	S7	S6	S5	S4	S3	S2	S1	G12	G11	G10	G9	G8	G7	G6	G5	G4	G3	G2	G1	G16	G15	G14	G13	NP	NP	F2	F2

F1,F2 : Filament G1~G2 : Grid S1~S35 : Anode NP : No Pin

ANODE & GRID ASSIGNMENT

G13				G14				G15			
NEXT TRACK NO. PROGRAM				SINGLE ELAPSED				REMAIN FS PITCH%			
1 2 3 4				1 2 3 4 m s				1 2 3 4 f ÷ .			
DATE DISC TRACK											
G1 G2 G3 G4				G5 G6 G7 G8				G9 G10 G11 G12			
L -dB 00 40 20 12 8 0 2 0 OVER				EDIT TOC				EJECT LOCK DIGITAL IN CUE EOM			
R				G16							

L -dB R	S35	S34	S33	S32	S31	S30	S29	S28	S27	S26
	∞	40	20	12	8	○	2	○	0	OVER
	S25	S20	S21	S22	S21	S20	S19	S18	S17	S16
										S15

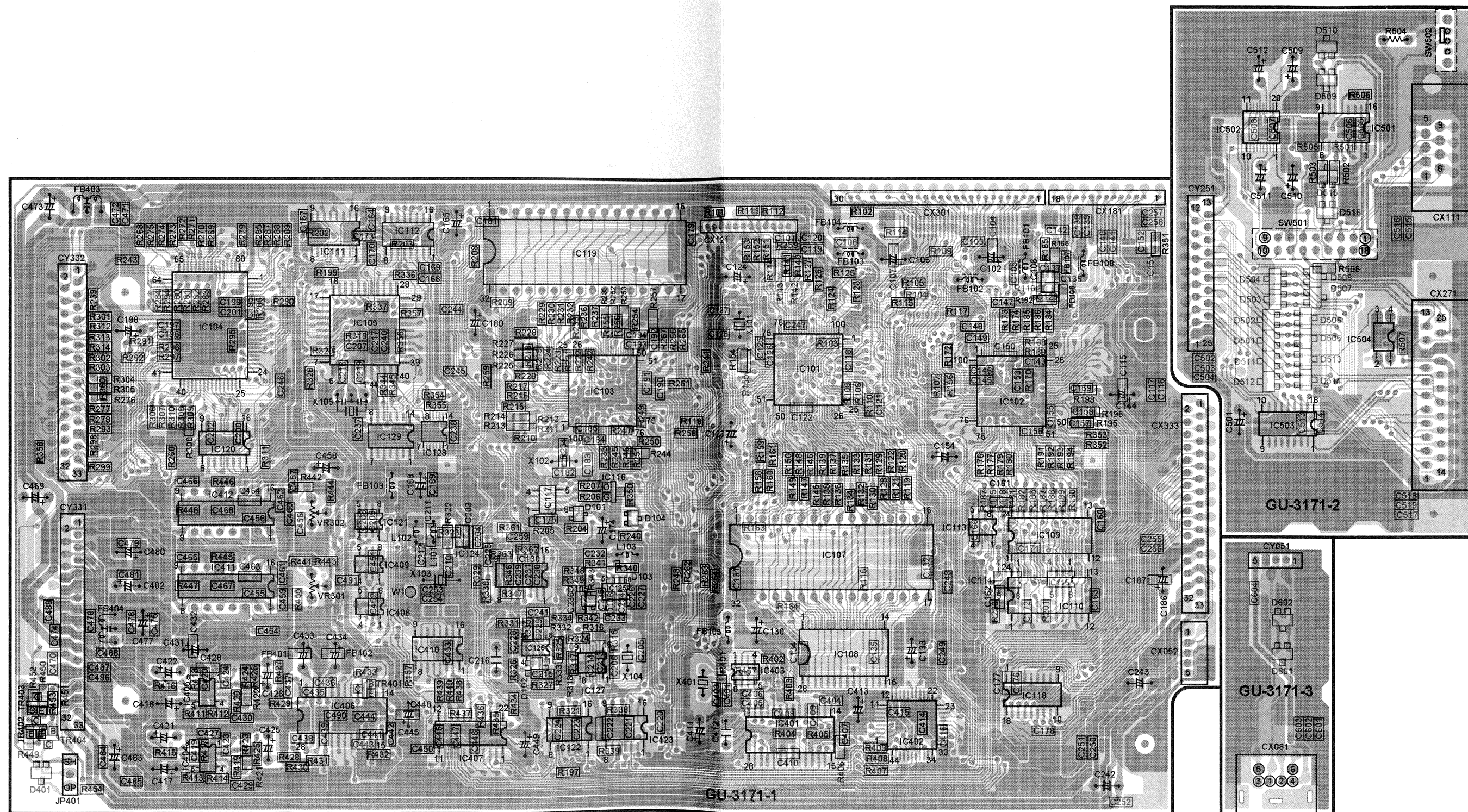


S1	S2	S2	S4	S5
S6	S7	S8	S9	S10
S11	S12	S13	S14	S15
S16	S17	S18	S19	S20
S21	S22	S23	S24	S25
S26	S27	S28	S29	S30
S31	S32	S33	S34	S35

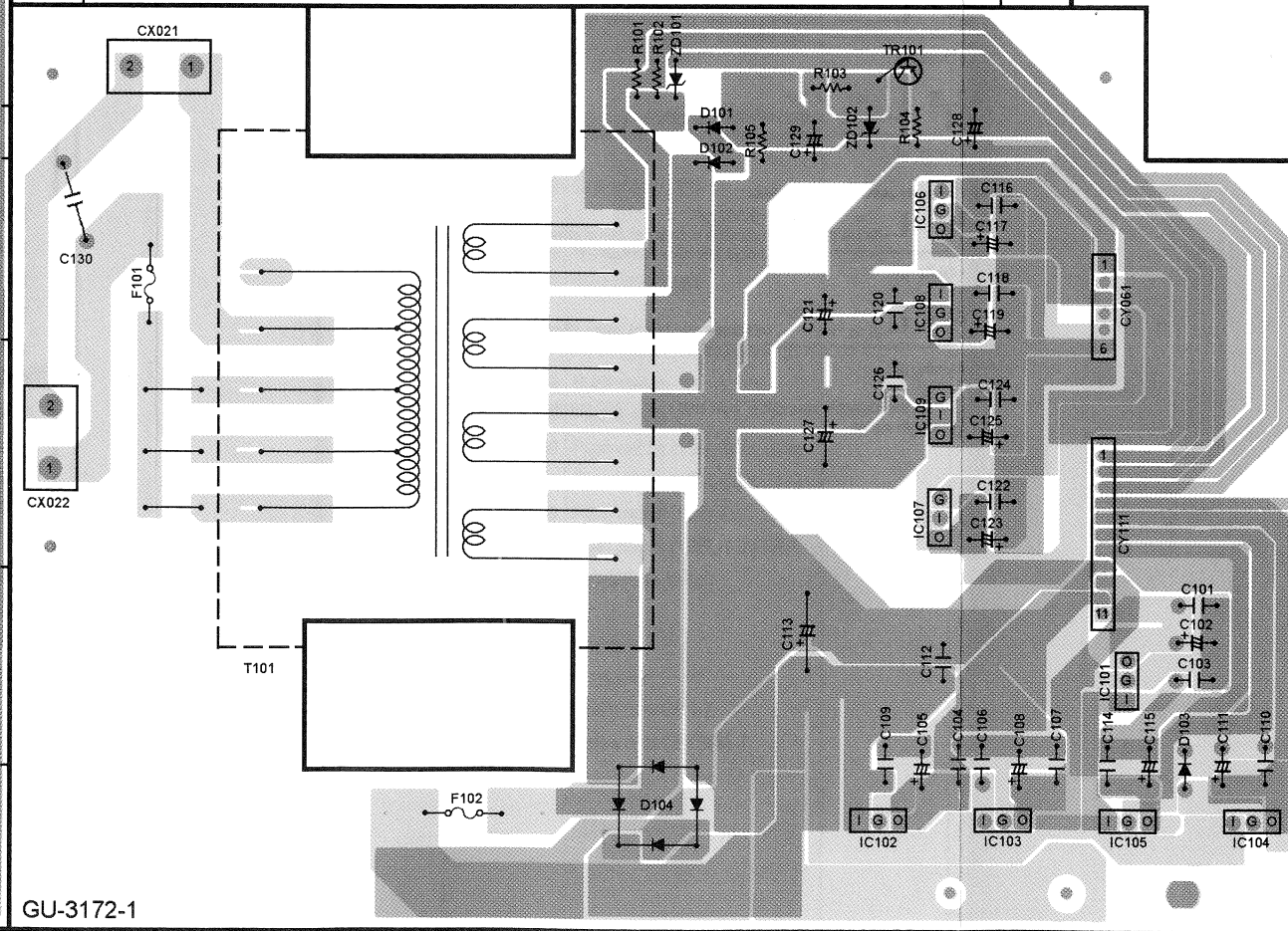
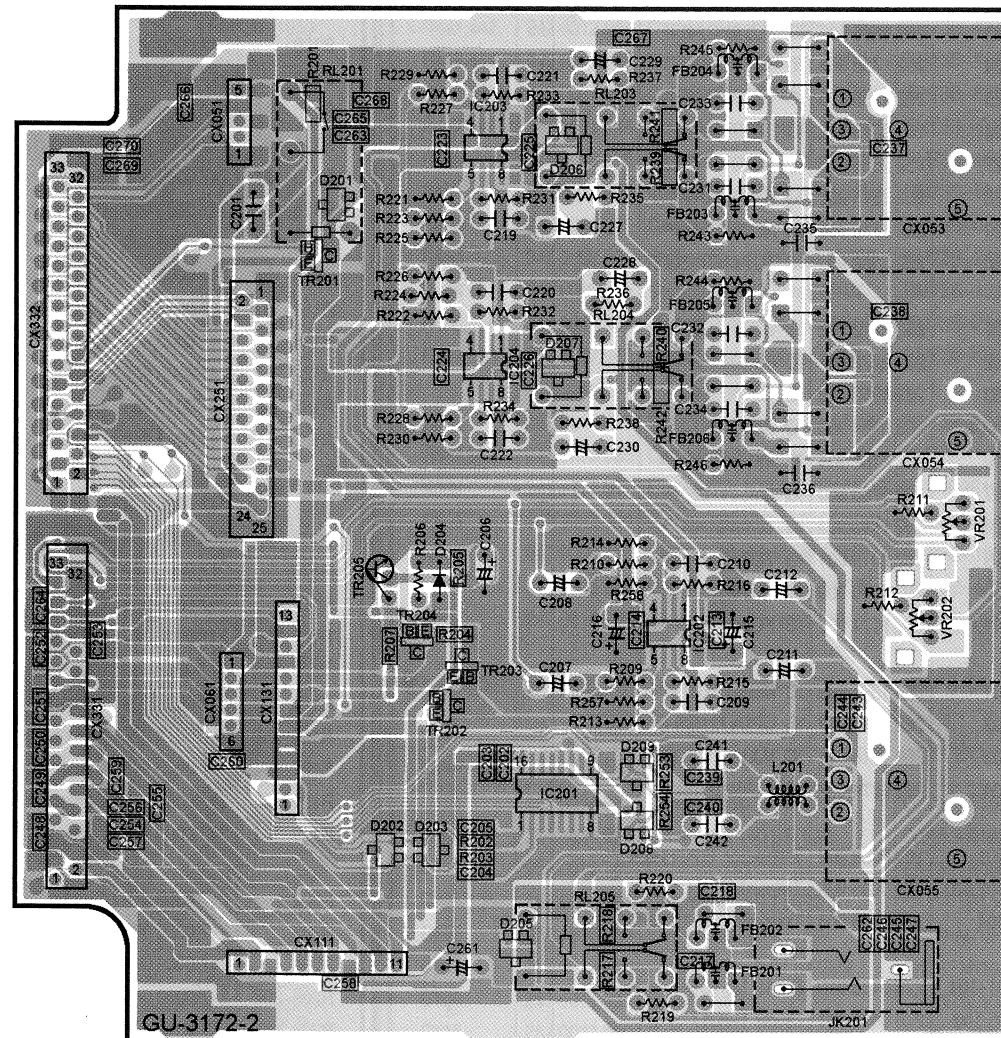
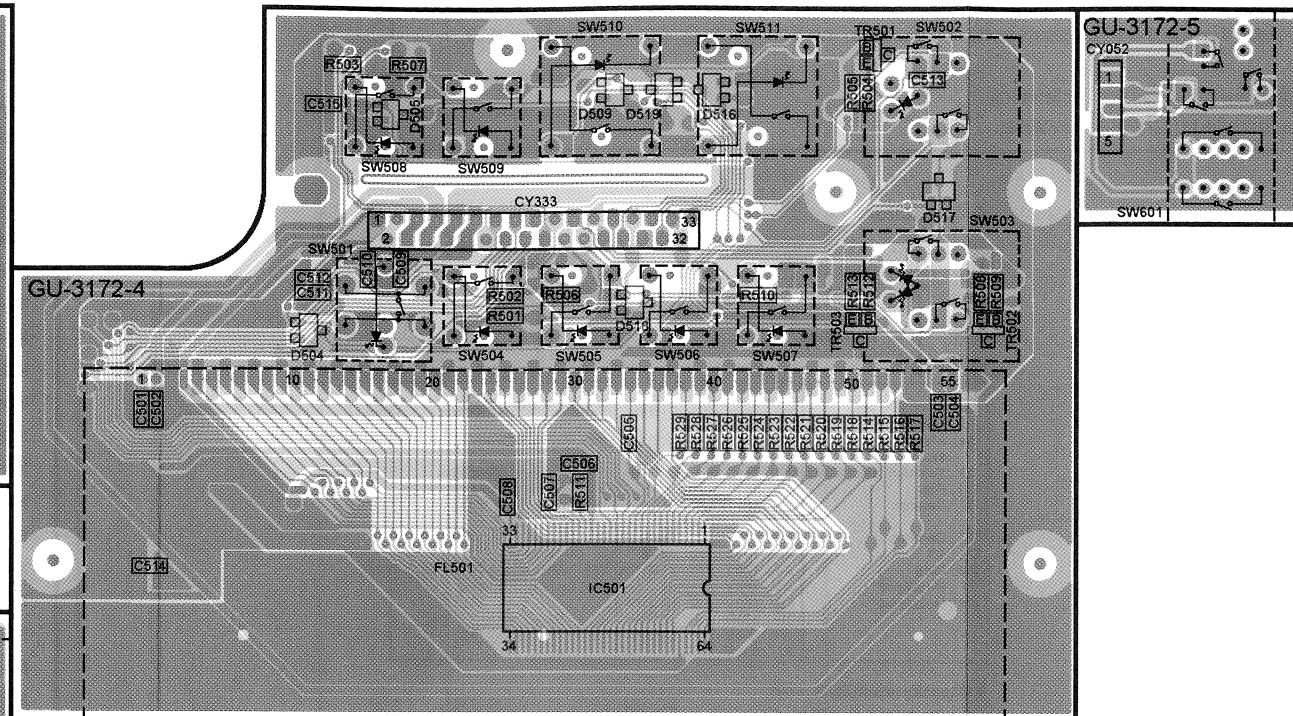
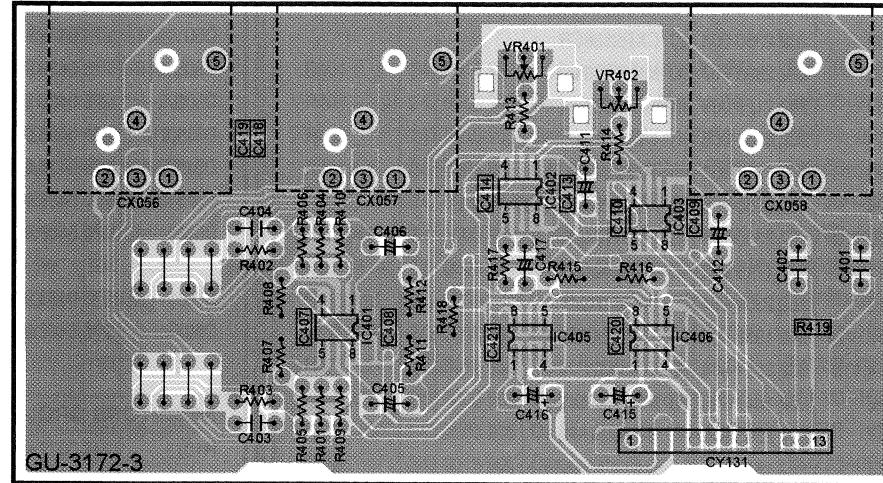
ANODE & GRID CONNECTION

	1G~12G	13G	14G	15G	16G
S1	S1	4d	4d	4d	—
S2	S2	3d	3d	3d	—
S3	S3	2d	2d	2d	—
S4	S4	1d	1d	1d	—
S5	S5	4e	4e	4e	—
S6	S6	3e	3e	3e	—
S7	S7	2e	2e	2e	EOM
S8	S8	1e	1e	1e	CUE
S9	S9	4c	4c	4c	DIGITAL IN
S10	S10	3c	3c	3c	TOC
S11	S11	2c	2c	2c	REPEAT
S12	S12	1c	1c	1c	EJECT LOCK
S13	S13	4g	4g	4g	—
S14	S14	3g	3g	3g	EDIT
S15	S15	2g	2g	2g	S15
S16	S16	1g	1g	1g	S16
S17	S17	4f	4f	4f	S17
S18	S18	3f	3f	3f	S18
S19	S19	2f	2f	2f	S19
S20	S20	1f	1f	1f	S20
S21	S21	4b	4b	4b	S21
S22	S22	3b	3b	3b	S22
S23	S23	2b	2b	2b	S23
S24	S24	1b	1b	1b	S24
S25	S25	4a	4a	4a	S25
S26	S26	3a	3a	3a	S26
S27	S27	2a	2a	2a	S27
S28	S28	1a	1a	1a	S28
S29	S29	S29	—	O	S29
S30	S30	NEXT	m.s	f	S30
S31	S31	TRACK NO.	ELAPSED	h	S31
S32	S32	PROGRAM	SINGLE	i	S32
S33	S33	DATE	—	PITCH %	S33
S34	S34	DISC	—	FS	S34
S35	S35	TRACK	—	REMAIN	S35

GU-3171 MAIN P.W.B. UNIT ASS'Y



GU-3172 POWER/AUDIO P.W.B. UNIT ASS'Y



A

B

C


D

E

NOTE FOR PARTS LIST

- Part indicated with the mark "⊙" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "I" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:

Parts marked with this symbol  have critical characteristics.

Use ONLY replacement parts recommended by the manufacturer.

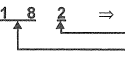
● Resistors

Ex.: RN 14K 2E 182 G FR Others

Type Shape Power Resist- Allowable Others
and per- ance error
formance

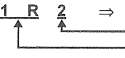
RD : Carbon	2B : 1/8W	F : ±1%	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : ±2%	NL : Low noise type
RS : Metal oxide film	2H : 1/2W	J : ±5%	NB : Non-burning type
RW : Winding	3A : 1W	K : ±10%	FR : Fuse-resistor
RN : Metal film	3D : 2W	M : ±20%	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

*** Resistance**

 ⇒ 1800 ohm = 1.8 kohm

Indicates number of zeros after effective number.
2-digit effective number.

• Units: ohm

 ⇒ 1.2 ohm

1-digit effective number.
2-digit effective number, decimal point indicated by R.

• Units: ohm

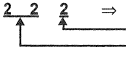
● Capacitors

Ex.: CE 04W 1H 2R2 M BP

Type Shape Dielectric Capacity Allowable Others
and per- strength error
formance

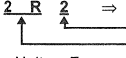
CE : Aluminum foil electrolytic	0J : 6.3V	F : ±1%	HS : High stability type
CA : Aluminum solid electrolytic	1A : 10V	G : ±2%	BP : Non-polar type
CS : Tantalum electrolytic	1C : 16V	J : ±5%	HR : Ripple-resistant type
CQ : Film	1E : 25V	K : ±10%	DL : For charge and discharge
CK : Ceramic	1V : 35V	M : ±20%	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : +80%	U : UL part
CP : Oil	2A : 100V	-20%	C : CSA part
CM : Mica	2B : 125V	P : +100%	W : UL-CSA type
CF : Metallized	2C : 160V	-0%	F : Lead wire forming
CH : Metallized	2D : 200V	C : ±0.25pF	
	2E : 250V	D : ±0.5pF	
	2H : 500V	= : Others	
	2J : 630V		

*** Capacity (electrolyte only)**

 ⇒ 2200μF

Indicates number of zeros after effective number.
2-digit effective number.

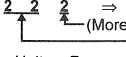
• Units: μF.

 ⇒ 2.2μF

1-digit effective number.
2-digit effective number, decimal point indicated by R.

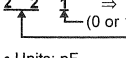
• Units: μF.

*** Capacity (except electrolyte)**

 ⇒ 2200pF=0.0022μF

(More than 2) — Indicates number of zeros after effective number.
2-digit effective number.

• Units: pF.

 ⇒ 220pF

(0 or 1) — Indicates number of zeros after effective number.
2-digit effective number.

• Units: pF.

• When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

PARTS LIST OF P.W.B. UNIT ASS'Y
GU-3171 MAIN P.W.B. UNIT ASS'Y

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP				RESISTORS GROUP			
IC101	262 2672 005	IC RHD64F3048F16	GEN4596	D401	276 0438 910	Diode MA151A	
IC102	262 2360 003	IC CXD2536CR		D501~504	276 0438 949	Diode MA151WK	
IC103	262 2395 007	IC MN1020015-1		D505~510	276 0438 907	Diode MA151WA	
IC104	262 2128 009	IC MB89363BH		D509	276 0438 949	Diode MA151WK	
IC105	262 2561 006	IC VT82C42V		D511,512	276 0438 949	Diode MA151WK	
IC106	262 1738 908	IC TC7SU04F		D513,514	276 0438 907	Diode MA151WA	
IC108	262 2358 905	IC HM62256BLFP-8T		D515	276 0438 949	Diode MA151WK	
IC109,110	262 2333 904	IC HM5116400ATS-7		D516	276 0438 907	Diode MA151WA	
IC111	262 1718 902	IC TC74HC00AF		D601	276 0438 949	Diode MA151WK	
IC112	262 2359 904	IC YM3437C-F		D602	276 0438 907	Diode MA151WA	
IC113	262 1953 903	IC TC7WU04F					
IC114,115	262 2391 904	IC TC7W32F					
IC116	262 1647 905	IC MN1382-S(TX)					
IC117	262 2363 903	IC S-24C04AFJ					
IC118	262 1816 901	IC NJU3713GT1					
IC119	262 2394 008	IC MX28F2000PPC-90		R101	247 0012 927	Carbon chip 100 kohm 1/10W	RM73B--104J
IC120	262 1637 902	IC TC74HC139AF		R102	247 0008 928	Carbon chip 2.2 kohm 1/10W	RM73B--222J
IC121	262 2019 901	IC TC7W74F		R103,104	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
IC122	262 1718 902	IC TC74HC00AF		R105	247 0008 928	Carbon chip 2.2 kohm 1/10W	RM73B--222J
IC123	262 1665 903	IC HD74HC74FP		R106	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
IC124	262 1738 908	IC TC7SU04F		R107	247 0008 928	Carbon chip 2.2 kohm 1/10W	RM73B--222J
IC125	262 1953 903	IC TC7WU04F		R108	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
IC126	263 0615 902	IC BA15218F		R109	247 0008 928	Carbon chip 2.2 kohm 1/10W	RM73B--222J
IC127	262 2651 903	IC BU2618FV-E2		R110~118	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
IC128	262 2515 900	IC SN74LV04APW		R119~122	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J
IC129	262 1710 900	IC HD74LS07FP		R123~127	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
IC130	262 2362 904	IC TC74ACT153FP		R128~139	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J
IC401	262 2212 902	IC CS8412CS		R140~144	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
IC402	262 2272 007	IC SM5844AF		R145~150	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J
IC403	262 1953 903	IC TC7WU04F		R151~157	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
IC404,405	263 0934 900	IC BA4510F		R158~161	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J
IC406	262 2158 901	IC AK5340-VS-E1		R162	247 0005 905	Carbon chip 100 ohm 1/10W	RM73B--101J
IC407	262 1765 900	IC SM5841BS		R163,164	247 0018 905	Carbon chip 0 ohm 1/10W	RM73B--0R0K
IC408	262 1953 903	IC TC7WU04F		R165	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J
IC409	262 2019 901	IC TC7W74F		R166	247 0018 905	Carbon chip 0 ohm 1/10W	RM73B--0R0K
IC410	262 1643 909	IC HD74HC153FP-TR		R167	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J
IC411,412	262 1171 002	IC PCM61P		R168,169	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
IC501	262 1597 903	IC M5M34051FP		R170	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J
IC502	262 2114 903	IC UPD4721GS-GJG		R172	247 0005 989	Carbon chip 220 ohm 1/10W	RM73B--221J
IC503	262 1816 901	IC NJU3713GT1		R173,174	247 0012 927	Carbon chip 100 kohm 1/10W	RM73B--104J
IC504	262 0874 009	IC TLP521-1(BL)		R175~183	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J
TR401	269 0082 902	Transistor DTC114EK		R176	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J
TR402,403	269 0085 909	Transistor DTC144TK		R184~186	247 0012 927	Carbon chip 100 kohm 1/10W	RM73B--104J
TR404	271 0260 905	Transistor 2SA1036K(S/R)		R187~194	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J
D101~104	276 0438 910	Diode MA151A		R195~198	247 0005 989	Carbon chip 220 ohm 1/10W	RM73B--221J
D105,106	276 0625 901	Diode HVU17		R199~201	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
				R202	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J
				R203	247 0005 905	Carbon chip 100 ohm 1/10W	RM73B--101J
				R204	247 0005 989	Carbon chip 220 ohm 1/10W	RM73B--221J
				R205~207	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
				R208,209	247 0018 905	Carbon chip 0 ohm 1/10W	RM73B--0R0K
				R210~233	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
R234	247 0005 989	Carbon chip 220 ohm 1/10W	RM73B--221J	R361	247 0004 977	Carbon chip 75 ohm 1/10W	RM73B--750J
R235	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J	R362,363	247 0009 972	Carbon chip 9.1 kohm 1/10W	RM73B--912J
R236~238	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J				
R239~247	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J	R401	247 0014 967	Carbon chip 1 Mohm 1/10W	RM73B--105J
R248	247 0008 928	Carbon chip 2.2 kohm 1/10W	RM73B--222J	R402	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J
R249~251	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J	R403	247 0018 905	Carbon chip 0 ohm 1/10W	RM73B--0R0K
R252~256	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J	R404,405	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R257	247 0018 905	Carbon chip 0 ohm 1/10W	RM73B--0R0K	R406	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
R258~267	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J	R407~409	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J
R268~275	247 0011 960	Carbon chip 56 kohm 1/10W	RM73B--563J	R411~414	247 0009 901	Carbon chip 4.7 kohm 1/10W	RM73B--472J
R276~289	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J	R415,416	247 0008 944	Carbon chip 2.7 kohm 1/10W	RM73B--272J
R290	247 0018 905	Carbon chip 0 ohm 1/10W	RM73B--0R0K	R417~420	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
R291~310	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J	R421~424	247 0010 958	Carbon chip 20 kohm 1/10W	RM73B--203J
				R425,426	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
R311	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J	R427~430	247 0005 905	Carbon chip 100 ohm 1/10W	RM73B--101J
R312~314	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J	R431	247 0018 905	Carbon chip 0 ohm 1/10W	RM73B--0R0K
R315	247 0005 989	Carbon chip 220 ohm 1/10W	RM73B--221J	R432	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J
R316~319	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J	R433	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
R320	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J	R434~436	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J
R321	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J	R437~440	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R322	247 0014 967	Carbon chip 1 Mohm 1/10W	RM73B--105J	R441,442	247 0013 984	Carbon chip 470 kohm 1/10W	RM73B--474J
R323	247 0003 978	Carbon chip 30 ohm 1/10W	RM73B--300J	R443,444	247 0014 967	Carbon chip 1 Mohm 1/10W	RM73B--105J
R324	247 0018 905	Carbon chip 0 ohm 1/10W	RM73B--0R0K	R445,446	247 0007 929	Carbon chip 820 ohm 1/10W	RM73B--821J
R325	247 0013 913	Carbon chip 240 kohm 1/10W	RM73B--244J	R447~449	247 0011 944	Carbon chip 47 kohm 1/10W	RM73B--473J
R326	247 0010 974	Carbon chip 24 kohm 1/10W	RM73B--243J	R450	247 0010 929	Carbon chip 15 kohm 1/10W	RM73B--153J
R327	247 0010 929	Carbon chip 15 kohm 1/10W	RM73B--153J	R451	247 0012 927	Carbon chip 100 kohm 1/10W	RM73B--104J
R328	247 0011 944	Carbon chip 47 kohm 1/10W	RM73B--473J	R452	247 0018 905	Carbon chip 0 ohm 1/10W	RM73B--0R0K
R329	247 0009 972	Carbon chip 9.1 kohm 1/10W	RM73B--912J	R453	247 0008 931	Carbon chip 2.4 kohm 1/10W	RM73B--242J
R330	247 0008 915	Carbon chip 2 kohm 1/10W	RM73B--202J	R454	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
R331	247 0009 914	Carbon chip 5.1 kohm 1/10W	RM73B--512J	R455,456	247 0012 998	Carbon chip 200 kohm 1/10W	RM73B--204J
R332,333	247 0010 929	Carbon chip 15 kohm 1/10W	RM73B--153J	R457	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R334	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J				
R335	247 0009 914	Carbon chip 5.1 kohm 1/10W	RM73B--512J	R501	247 0012 969	Carbon chip 150 kohm 1/10W	RM73B--154J
R336,337	247 0011 944	Carbon chip 47 kohm 1/10W	RM73B--473J	R502,503	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
R338	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J	R504	241 2377 947	Carbon film 100 ohm 1/4W(NB)	RD14B2E101JNBS
R339	247 0006 920	Carbon chip 330 ohm 1/10W	RM73B--331J	R505	247 0012 969	Carbon chip 150 kohm 1/10W	RM73B--154J
R340	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J	R506	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
R341	247 0014 967	Carbon chip 1 Mohm 1/10W	RM73B--105J	R507	247 0006 962	Carbon chip 470 ohm 1/10W	RM73B--471J
R342,343	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J	R508	247 0018 905	Carbon chip 0 ohm 1/10W	RM73B--0R0K
R344,345	247 0009 901	Carbon chip 4.7 kohm 1/10W	RM73B--472J				
R346	247 0009 972	Carbon chip 9.1 kohm 1/10W	RM73B--912J	VR301,302	211 6093 970	Semi fixed resistor 100 kohm	V06PB104
R347	247 0009 914	Carbon chip 5.1 kohm 1/10W	RM73B--512J				
R348,349	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J				
R350	247 0005 905	Carbon chip 100 ohm 1/10W	RM73B--101J	CAPACITORS GROUP			
R351	247 0018 905	Carbon chip 0 ohm 1/10W	RM73B--0R0K	C101	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
R352,353	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J	C102	254 4536 928	Electrolytic 100 μ F/10V	CE04W1A101M(SMG/RE3)
R355	247 0018 905	Carbon chip 0 ohm 1/10W	RM73B--0R0K	C103	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
R356	247 0012 927	Carbon chip 100 kohm 1/10W	RM73B--104J	C104,105	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
R357	247 0011 944	Carbon chip 47 kohm 1/10W	RM73B--473J	C106	254 4536 957	Electrolytic 470 μ F/10V	CE04W1A471M(SMG/RE3)
R358	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B--220J	C107	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
R359	247 0008 928	Carbon chip 2.2 kohm 1/10W	RM73B--222J	C108	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
R360	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J	C115	257 0007 900	Ceramic chip 1000 pF/50V	CC73SL1H102J
				C116	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
C117	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C185	257 0007 900	Ceramic chip 1000 pF/50V	CC73SL1H102J
C118~120	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C186	254 4536 928	Electrolytic 100 μ F/10V	CE04W1A101M(SMG/RE3)
C121	257 0003 933	Ceramic chip 30 pF/50V	CC73SL1H300J	C187	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C122	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C188	254 4538 939	Electrolytic 47 μ F/16V	CE04W1C470M(SMG/RE3)
C123,124	254 4538 939	Electrolytic 47 μ F/16V	CE04W1C470M(SMG/RE3)	C189	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C125	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C190	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C126	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C191	257 0007 900	Ceramic chip 1000 pF/50V	CC73SL1H102J
C127,128	257 0002 963	Ceramic chip 15 pF/50V	CC73SL1H150J	C192	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C129	257 0002 921	Ceramic chip 10 pF/50V	CC73SL1H100D	C193	257 0007 900	Ceramic chip 1000 pF/50V	CC73SL1H102J
C130	254 4538 939	Electrolytic 47 μ F/16V	CE04W1C470M(SMG/RE3)	C194	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C131	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C195	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C132	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C196	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C133	254 4538 939	Electrolytic 47 μ F/16V	CE04W1C470M(SMG/RE3)	C197	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C134	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C198	254 4538 939	Electrolytic 47 μ F/16V	CE04W1C470M(SMG/RE3)
C135,136	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C199	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C137	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C200	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C138	257 0008 983	Ceramic chip 1000 pF/50V	CK73B1H102K	C201	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C139,140	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C202	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C141	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C203	257 0007 900	Ceramic chip 1000 pF/50V	CC73SL1H102J
C142,143	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C204	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C144	254 4538 939	Electrolytic 47 μ F/16V	CE04W1C470M(SMG/RE3)	C205,206	257 0003 904	Ceramic chip 22 pF/50V	CC73SL1H220J
C145	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C207	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C146	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C208	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C147~150	257 0004 961	Ceramic chip 100 pF/50V	CC73SL1H101J	C209	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C151	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C210,211	257 0001 977	Ceramic chip 5.0 pF/50V	CC73SL1H5R0C
C152	257 0008 983	Ceramic chip 1000 pF/50V	CK73B1H102K	C212	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C153	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C213	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C154	254 4538 939	Electrolytic 47 μ F/16V	CE04W1C470M(SMG/RE3)	C214	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C155	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C215	257 0002 921	Ceramic chip 10 pF/50V	CC73SL1H100D
C156	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C216	256 1059 954	Metalized 0.47 μ F/50V	CF93A1H474J (JL)
C157,158	257 0002 921	Ceramic chip 10 pF/50V	CC73SL1H100D	C217	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C159	257 0001 977	Ceramic chip 5.0 pF/50V	CC73SL1H5R0C	C220	257 0008 983	Ceramic chip 1000 pF/50V	CK73B1H102K
C160	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C221	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C161	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C222	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C162	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C223	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C163	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C224	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C164	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C225	257 0010 900	Ceramic chip 0.01 μ F/50V	CK73B1H103K
C165	254 4533 918	Electrolytic 47 μ F/6.3V	CE04W0J470M(SMG/RE3)	C226	257 0007 900	Ceramic chip 1000 pF/50V	CC73SL1H102J
C166	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C227	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C168	257 0006 927	Ceramic chip 470 pF/50V	CC73SL1H471J	C228	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C169	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C229	257 0011 996	Ceramic chip 0.1 μ F/25V	CK73B1E104K
C170	257 0012 908	Ceramic chip 1000 pF/50V	CK73F1H102Z	C230	257 0007 900	Ceramic chip 1000 pF/50V	CC73SL1H102J
C171,172	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C231	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C174	254 4538 939	Electrolytic 47 μ F/16V	CE04W1C470M(SMG/RE3)	C232,233	257 0007 900	Ceramic chip 1000 pF/50V	CC73SL1H102J
C175	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C234	257 0008 983	Ceramic chip 1000 pF/50V	CK73B1H102K
C176	257 0008 983	Ceramic chip 1000 pF/50V	CK73B1H102K	C235	257 0002 921	Ceramic chip 10 pF/50V	CC73SL1H100D
C177	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C236	257 0011 996	Ceramic chip 0.1 μ F/25V	CK73B1E104K
C178,179	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C237,238	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C180	254 4538 939	Electrolytic 47 μ F/16V	CE04W1C470M(SMG/RE3)	C239	257 0010 900	Ceramic chip 0.01 μ F/50V	CK73B1H103K
C181	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C240	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C182,183	257 0003 962	Ceramic chip 39 pF/50V	CC73SL1H390J	C241	257 0005 931	Ceramic chip 200 pF/50V	CC73SL1H201J
C184	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z				

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
C242,243	254 3056 975	Electrolytic 33 μ F/50V	CE04D1H330MBP	C475	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C259	257 0010 900	Ceramic chip 0.01 μ F/50V	CK73B1H103K	C476	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C401	257 0003 904	Ceramic chip 22 pF/50V	CC73SL1H220J	C477	254 4536 931	Electrolytic 220 μ F/10V	CE04W1A221M(SMG/RE3)
C403	257 0003 904	Ceramic chip 22 pF/50V	CC73SL1H220J	C478	257 0008 983	Ceramic chip 1000 pF/50V	CK73B1H102K
C404	257 0001 977	Ceramic chip 5.0 pF/50V	CC73SL1H5R0C	C479	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C405	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C480	254 4536 928	Electrolytic 100 μ F/10V	CE04W1A101M(SMG/RE3)
C406	257 0007 900	Ceramic chip 1000 pF/50V	CC73SL1H102J	C481	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C407,408	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C482	254 4536 928	Electrolytic 100 μ F/10V	CE04W1A101M(SMG/RE3)
C409	257 0007 900	Ceramic chip 1000 pF/50V	CC73SL1H102J	C483	254 4536 931	Electrolytic 220 μ F/10V	CE04W1A221M(SMG/RE3)
C410	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C484	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C411	254 4538 939	Electrolytic 47 μ F/16V	CE04W1C470M(SMG/RE3)	C501	254 4536 931	Electrolytic 220 μ F/10V	CE04W1A221M(SMG/RE3)
C412	256 1058 939	Metalized 0.047 μ F/50V	CF93A1H473J (JL)	C502	257 0012 908	Ceramic chip 1000 pF/50V	CK73F1H102Z
C413	254 4538 939	Electrolytic 47 μ F/16V	CE04W1C470M(SMG/RE3)	C503	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C414	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C504	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C415	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C505	257 0012 908	Ceramic chip 1000 pF/50V	CK73F1H102Z
C416	257 0007 900	Ceramic chip 1000 pF/50V	CC73SL1H102J	C506	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C417,418	254 4533 921	Electrolytic 100 μ F/6.3V	CE04W0J101M(SMG/RE3)	C507	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C419,420	257 0003 933	Ceramic chip 30 pF/50V	CC73SL1H300J	C508	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C421,422	254 4524 998	Electrolytic 22 μ F/50V	CE04W1H220M(SMG/RE3)	C509~512	254 4522 929	Electrolytic 22 μ F/35V	CE04W1V220M(SMG/RE3)
C423,424	257 0003 933	Ceramic chip 30 pF/50V	CC73SL1H300J	C513	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C425,426	254 4524 998	Electrolytic 22 μ F/50V	CE04W1H220M(SMG/RE3)	C514,515	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C427~430	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C516	257 0012 908	Ceramic chip 1000 pF/50V	CK73F1H102Z
C431	254 4538 939	Electrolytic 47 μ F/16V	CE04W1C470M(SMG/RE3)	C517	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C432	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	C518	257 0007 900	Ceramic chip 1000 pF/50V	CC73SL1H102J
C433,434	254 4538 900	Electrolytic 10 μ F/16V	CE04W1C100M(SMG/RE3)	C519	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C435,436	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C601	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C437,438	257 0009 966	Ceramic chip 4700 pF/50V	CK73B1H472K	C602	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C439	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	C603	257 0008 983	Ceramic chip 1000 pF/50V	CK73B1H102K
C440~442	257 0003 988	Ceramic chip 47 pF/50V	CC73SL1H470J	OTHER PARTS GROUP			Q'ty
C443	257 0008 983	Ceramic chip 1000 pF/50V	CK73B1H102K	CX052	205 0343 058	5P connector base (KR-PH)	1
C444	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	CX081	204 8579 009	6P MD jack (TCS7927)	1
C445	254 4533 921	Electrolytic 100 μ F/6.3V	CE04W0J101M(SMG/RE3)	CX111	205 0618 107	9P DSUB SKT	1
C446	257 0007 900	Ceramic chip 1000 pF/50V	CC73SL1H102J	CX121	205 0762 024	12P ZR connector base	1
C447	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	CX181	205 0995 901	18P FFC connector base (0.8)	1
C448	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	CX271	205 0618 110	25P DSUB SKT	1
C449	254 4538 939	Electrolytic 47 μ F/16V	CE04W1C470M(SMG/RE3)	CX301	205 0995 914	30P FFC connector base (0.8)	1
C450	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	CX333	205 0770 058	33P FFC base (SIDE)	1
C451	257 0007 900	Ceramic chip 1000 pF/50V	CC73SL1H102J	CY051	203 8355 000	5P connector cord (KR-DS)	1
C452	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z	CY251	205 1050 010	25P FFC base (9603F)	1
C453~457	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	CY331,332	205 0736 005	33P FFC base	2
C458	254 4536 928	Electrolytic 100 μ F/10V	CE04W1A101M(SMG/RE3)	FB101~105	235 0049 900	Beads inductor	4
C459~462	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z	FB108,109	235 0049 900	Beads inductor	3
C463,464	257 0014 948	Ceramic chip 0.22 μ F/25V	CK73F1E224Z	FB403,404	235 0086 905	EMI filter	2
C465,466	257 0006 969	Ceramic chip 680 pF/50V	CC73SL1H681J	FB106,107	235 0106 908	Chip emifil (21A05)	2
C467,468	257 0009 979	Ceramic chip 5600 pF/50V	CK73B1H562K	FB401,402	235 0106 908	Chip emifil (21A05)	2
C469	254 4536 931	Electrolytic 220 μ F/10V	CE04W1A221M(SMG/RE3)				
C470	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z				
C471	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z				
C472	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z				
C473	254 4536 931	Electrolytic 220 μ F/10V	CE04W1A221M(SMG/RE3)				
C474	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z				

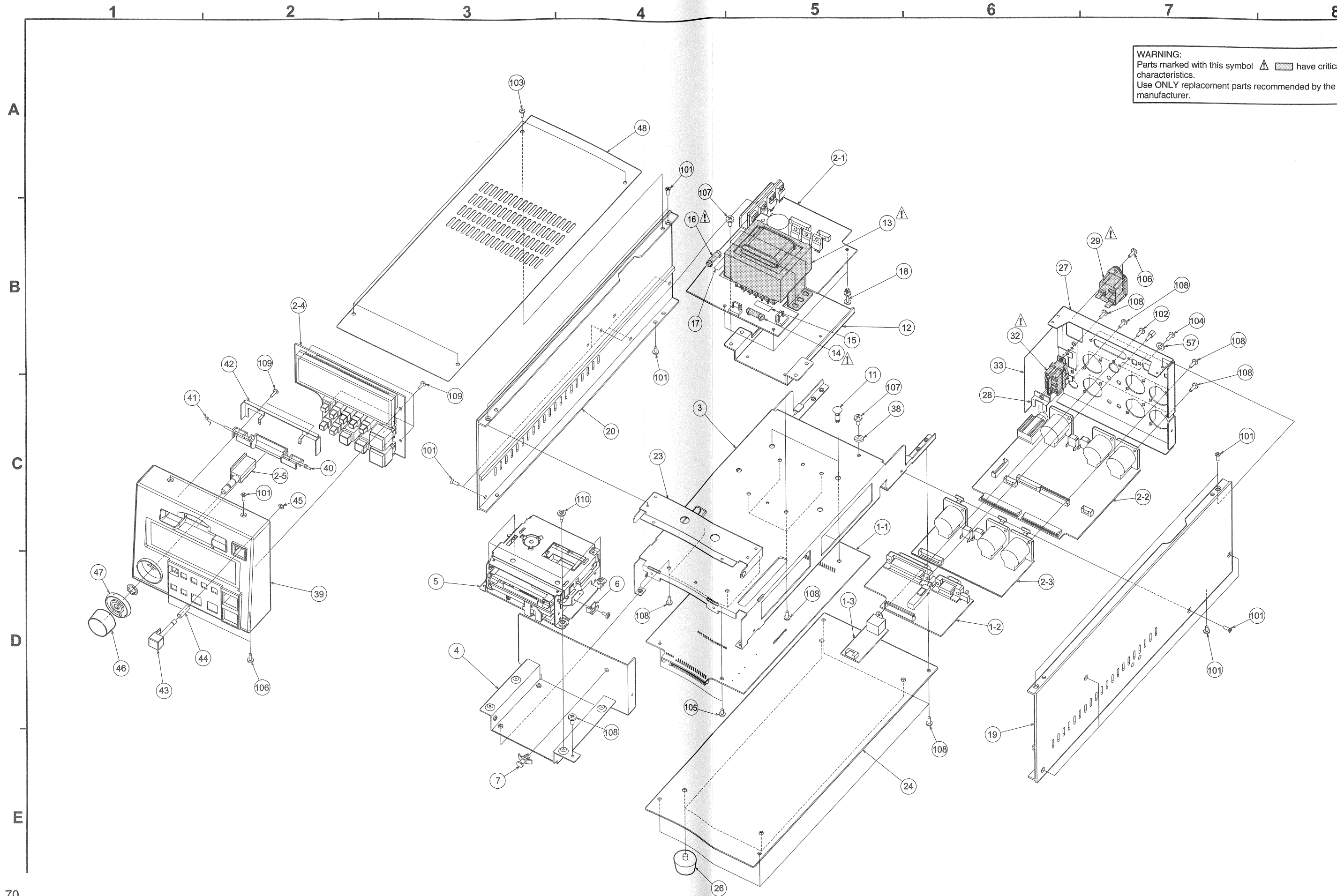
GU-3172 POWER/AUDIO P.W.B. UNIT ASS'Y

Ref. No.	Part No.	Part Name	Remarks	Q'ty	Ref. No.	Part No.	Part Name	Remarks
JP401	205 0341 018	3P RE header		1	SEMICONDUCTORS GROUP			
JP401	205 0339 004	JM jumper connector		1	IC101~103	263 0809 006	IC NJM7805FA(S)	
L101,102	235 0107 923	Inductor 1.2 μ H		1	IC104	263 0793 002	IC NJM7806FA(S)	
L103	235 0107 965	Inductor 0.56 μ H		1	IC105	263 0809 006	IC NJM7805FA(S)	
SW501	212 1142 007	Slide switch (SPUJ19)		1	IC106	263 0800 005	IC NJM78M05FA(S)	
SW502	212 4811 005	Slide switch (SSAB)		1	IC107	263 0842 005	IC NJM79M05FA(S)	
X101	399 0237 906	Crystal 16.0 MHz		1	IC108	263 0794 001	IC NJM78M12FA(S)	
X102	399 0219 021	Crystal 12.288 MHz		1	IC109	263 0539 004	IC NJM79M12FA	
X103	399 0239 904	Crystal 45.1584 MHz		1	IC201	262 2020 903	IC M5M34050FP-31A	
X104	399 0036 000	Crystal 8.4672MHz		1	IC202	263 0615 902	IC BA15218F	
X105	399 0160 905	Ceramic 8.00 MHz		1	IC203,204	263 0898 907	IC NJM5532MD	
X401	261 0068 003	Crystal 6.144MHz		1	IC401~403	263 0615 902	IC BA15218F	
	205 0488 036	32P IC socket	for IC107,119	2	IC405,406	262 1793 901	IC TC4W53F	
	513 8013 003	P-ROM seal		1	IC501	262 1954 902	IC M66004FP	
					TR101	272 0083 004	Transistor 2SB1185(E/F)	
					TR201	269 0047 905	Transistor DTA143EK	
					TR202	269 0156 906	Transistor DTA124XKA	
					TR203,204	269 0082 902	Transistor DTC114EK	
					TR205	273 0303 910	Transistor 2SC1740S(S)	
					TR501~503	271 0238 908	Transistor 2SA1037K(S/R)	
					D101,102	276 0550 908	Diode 1SR139-200	
					D103	276 0432 903	Diode 1SS270A	
					D104	276 0338 007	Diode S4VB20F	
					D105	276 0405 901	Diode S1WB(A)10	
					D201	276 0438 910	Diode MA151A	
					D202	276 0438 949	Diode MA151WK	
					D203	276 0438 907	Diode MA151WA	
					D204	276 0432 903	Diode 1SS270A	
					D205~207	276 0438 910	Diode MA151A	
					D208	276 0438 949	Diode MA151WK	
					D209	276 0438 907	Diode MA151WA	
					D504,505	276 0438 910	Diode MA151A	
					D509	276 0438 910	Diode MA151A	
					D516~519	276 0438 910	Diode MA151A	
					ZD101	276 0465 909	Zener diode HZS7B-1TD	
					ZD102	276 0645 981	Zener diode MTZJ39A	36V
					RESISTORS GROUP			
					R201	247 0005 921	Carbon chip 120 ohm 1/10W	RM73B--121J
					R202,203	247 0005 905	Carbon chip 100 ohm 1/10W	RM73B--101J
					R204	247 0012 998	Carbon chip 200 kohm 1/10W	RM73B--204J
					R205	247 0004 922	Carbon chip 47 ohm 1/10W	RM73B--470J
					R206	244 2052 902	Metal oxide 2.7 kohm 1W	RS14B3A272JNBS(S)

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
R207	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J	C201	253 9030 992	Ceramic 0.033 μ F/25V	CK45=1E333K
R217,218	247 0006 920	Carbon chip 330 ohm 1/10W	RM73B--331J	C202	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
R219,220	244 2055 970	Metal oxide 56 ohm 1W	RS14B3A560JNBS(S)	C203	257 0008 983	Ceramic chip 1000 pF/50V	CK73B1H102K
R239-242	247 0006 920	Carbon chip 330 ohm 1/10W	RM73B--331J	C204,205	257 0003 946	Ceramic chip 33 pF/50V	CC73SL1H330J
R253,254	247 0002 966	Carbon chip 10 ohm 1/10W	RM73B--100J	C206	254 4541 955	Electrolytic 220 μ F/25V	CE04W1E221M(SMG/RE3)
R419	247 0005 918	Carbon chip 110 ohm 1/10W	RM73B--111J	C207,208	254 4536 928	Electrolytic 100 μ F/10V	CE04W1A101M(SMG/RE3)
R501-503	247 0005 947	Carbon chip 150 ohm 1/10W	RM73B--151J	C209,210	253 4537 982	Ceramic 56 pF/50V	CC45SL1H560J
R504	247 0003 965	Carbon chip 27 ohm 1/10W	RM73B--270J	C211,212	254 4536 928	Electrolytic 100 μ F/10V	CE04W1A101M(SMG/RE3)
R505	247 0005 905	Carbon chip 100 ohm 1/10W	RM73B--101J	C213,214	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
R506,507	247 0005 947	Carbon chip 150 ohm 1/10W	RM73B--151J	C215,216	254 4538 900	Electrolytic 10 μ F/16V	CE04W1C100M(SMG/RE3)
R508	247 0003 965	Carbon chip 27 ohm 1/10W	RM73B--270J	C217,218	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
R509	247 0005 905	Carbon chip 100 ohm 1/10W	RM73B--101J	C219-222	253 4536 983	Ceramic 22 pF/50V	CC45SL1H220J
R510	247 0005 947	Carbon chip 150 ohm 1/10W	RM73B--151J	C223-226	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
R511	247 0010 987	Carbon chip 27 kohm 1/10W	RM73B--273J	C227-230	254 4538 942	Electrolytic 100 μ F/16V	CE04W1C101M(SMG/RE3)
R512	247 0003 965	Carbon chip 27 ohm 1/10W	RM73B--270J	C231-236	253 4537 966	Ceramic 47 pF/50V	CC45SL1H470J
R513	247 0005 905	Carbon chip 100 ohm 1/10W	RM73B--101J	C237,238	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
VR201,202	211 0552 006	Variable resistor 1 kohm	V09QA102	C239,240	257 0003 946	Ceramic chip 33 pF/50V	CC73SL1H330J
VR401,402	211 6104 005	Variable resistor 20 kohm	V09QA203	C241,242	256 1035 978	Metalized 0.68 μ F/50V	CF93A1H684J
CAPACITORS GROUP				C243	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C101	253 9039 906	Ceramic 0.1 μ F/25V	CK45=1E104Z	C244	257 0008 983	Ceramic chip 1000 pF/50V	CK73B1H102K
C102	254 4536 928	Electrolytic 100 μ F/10V	CE04W1A101M(SMG/RE3)	C245	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C103,104	253 9039 906	Ceramic 0.1 μ F/25V	CK45=1E104Z	C246	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C105	254 4536 928	Electrolytic 100 μ F/10V	CE04W1A101M(SMG/RE3)	C247	257 0008 983	Ceramic chip 1000 pF/50V	CK73B1H102K
C106,107	253 9039 906	Ceramic 0.1 μ F/25V	CK45=1E104Z	C248-253	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C108	254 4536 928	Electrolytic 100 μ F/10V	CE04W1A101M(SMG/RE3)	C254-257	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C109,110	253 9039 906	Ceramic 0.1 μ F/25V	CK45=1E104Z	C401,402	256 1035 978	Metalized 0.68 μ F/50V	CF93A1H684J
C111	254 4536 931	Electrolytic 220 μ F/10V	CE04W1A221M(SMG/RE3)	C403,404	253 1179 903	Ceramic 100 pF/50V	CK45B1H101K
C112	253 9039 906	Ceramic 0.1 μ F/25V	CK45=1E104Z	C405,406	254 4538 900	Electrolytic 10 μ F/16V	CE04W1C100M(SMG/RE3)
C113	254 4509 706	Electrolytic 12000 μ F/25V	CE04W1E123MC(SMG)	C407-410	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C114	253 9039 906	Ceramic 0.1 μ F/25V	CK45=1E104Z	C411,412	254 4538 942	Electrolytic 100 μ F/16V	CE04W1C101M(SMG/RE3)
C115	254 4536 931	Electrolytic 220 μ F/10V	CE04W1A221M(SMG/RE3)	C413,414	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C116	253 9039 906	Ceramic 0.1 μ F/25V	CK45=1E104Z	C415,416	254 4536 928	Electrolytic 100 μ F/10V	CE04W1A101M(SMG/RE3)
C117	254 4536 928	Electrolytic 100 μ F/10V	CE04W1A101M(SMG/RE3)	C417	254 4538 900	Electrolytic 10 μ F/16V	CE04W1C100M(SMG/RE3)
C118	253 9039 906	Ceramic 0.1 μ F/25V	CK45=1E104Z	C418	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C119	254 4538 942	Electrolytic 100 μ F/16V	CE04W1C101M(SMG/RE3)	C419-421	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C120	253 9039 906	Ceramic 0.1 μ F/25V	CK45=1E104Z	C501-504	257 0013 907	Ceramic chip 0.047 μ F/50V	CK73F1H473Z
C121	254 4522 796	Electrolytic 1000 μ F/35V	CE04W1V102MC(SMG/RE3)	C505,506	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C122	253 9039 906	Ceramic 0.1 μ F/25V	CK45=1E104Z	C507	257 0004 961	Ceramic chip 100 pF/50V	CC73SL1H101J
C123	254 4536 928	Electrolytic 100 μ F/10V	CE04W1A101M(SMG/RE3)	C508	257 0013 907	Ceramic chip 0.047 μ F/50V	CK73F1H473Z
C124	253 9039 906	Ceramic 0.1 μ F/25V	CK45=1E104Z	C509	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C125	254 4538 942	Electrolytic 100 μ F/16V	CE04W1C101M(SMG/RE3)	C510	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C126	253 9039 906	Ceramic 0.1 μ F/25V	CK45=1E104Z	C511	257 0008 983	Ceramic chip 1000 pF/50V	CK73B1H102K
C127	254 4428 706	Electrolytic 2200 μ F/35V	CE04W1V222MC(SMG)	C512	257 0012 966	Ceramic chip 0.01 μ F/50V	CK73F1H103Z
C128	254 4535 929	Electrolytic 47 μ F/63V	CE04W1J470M(SMG/RE3)	C513	257 0014 935	Ceramic chip 0.1 μ F/25V	CK73F1E104Z
C129	254 4540 707	Electrolytic 330 μ F/63V	CE04W1J331MC(SMG/RE3)				
C130	253 8014 702	Ceramic 0.01 μ F/400V(AC)	CK45F2GAC103MC				

Ref. No.	Part No.	Part Name	Remarks	Q'ty
OTHER PARTS GROUP				
CX021	205 0581 001	2P VH connector base		1
CX022	205 0581 056	2P VH connector base		1
CX051	205 0343 058	5P connector base (KR-PH)		1
CX053-055	205 0428 009	3P Cannon connector		3
CX056-058	205 0450 006	3P Cannon connector		3
CX061	205 0343 061	6P connector base (KR-PH)		1
CX111	205 0375 013	11P connector base (KR-PH)		1
CX131	205 0375 039	13P connector base (KR-PH)		1
CX251	205 0736 089	25P FFC connector base		1
CX331,332	205 0770 058	33P FFC base (SIDE)		2
CY052	203 8483 008	5P connector cord (KR-DA)		1
CY061	205 0343 061	6P connector base (KR-PH)		1
CY111	205 0375 013	11P connector base (KR-PH)		1
CY131	204 6631 004	13P connector cord (PH-SAN)		1
CY333	205 0736 005	33P FFC base		1
FB201,202	235 0086 905	EMI filter		2
FF101	202 0040 909	Fuse clip		1
FH101	202 0040 909	Fuse clip		1
FL501	393 8042 001	FLD (CL1842D)		1
JK201	204 8198 008	Headphone jack		1
L201	231 0083 003	Low volt line filter		1
RL201	214 0121 009	Relay		1
RL20-204	214 0127 003	Relay (RY-12W)		3
SW501	212 1184 007	Push switch (13AL-060) RED		1
SW502	212 1108 009	Push switch		1
SW503	212 1105 109	Push switch		1
SW504-507	212 1182 009	Push switch (13BL-060) GRN		4
SW508	212 1182 012	Push switch (13BL-060) ORG		1
SW509	212 1182 009	Push switch (13BL-060) GRN		1
SW510,511	212 1183 008	Push switch (13BL-110) WHT		2
SW601	212 0289 204	Pulse/Push switch		1
	417 0497 002	Radiator		1
	461 0984 033	FL spacer		1
	471 3304 015	Screw 3x8 CBS-Z		4
	473 7002 018	Screw 3x8 CBTS(S)-Z		1

EXPLODED VIEW

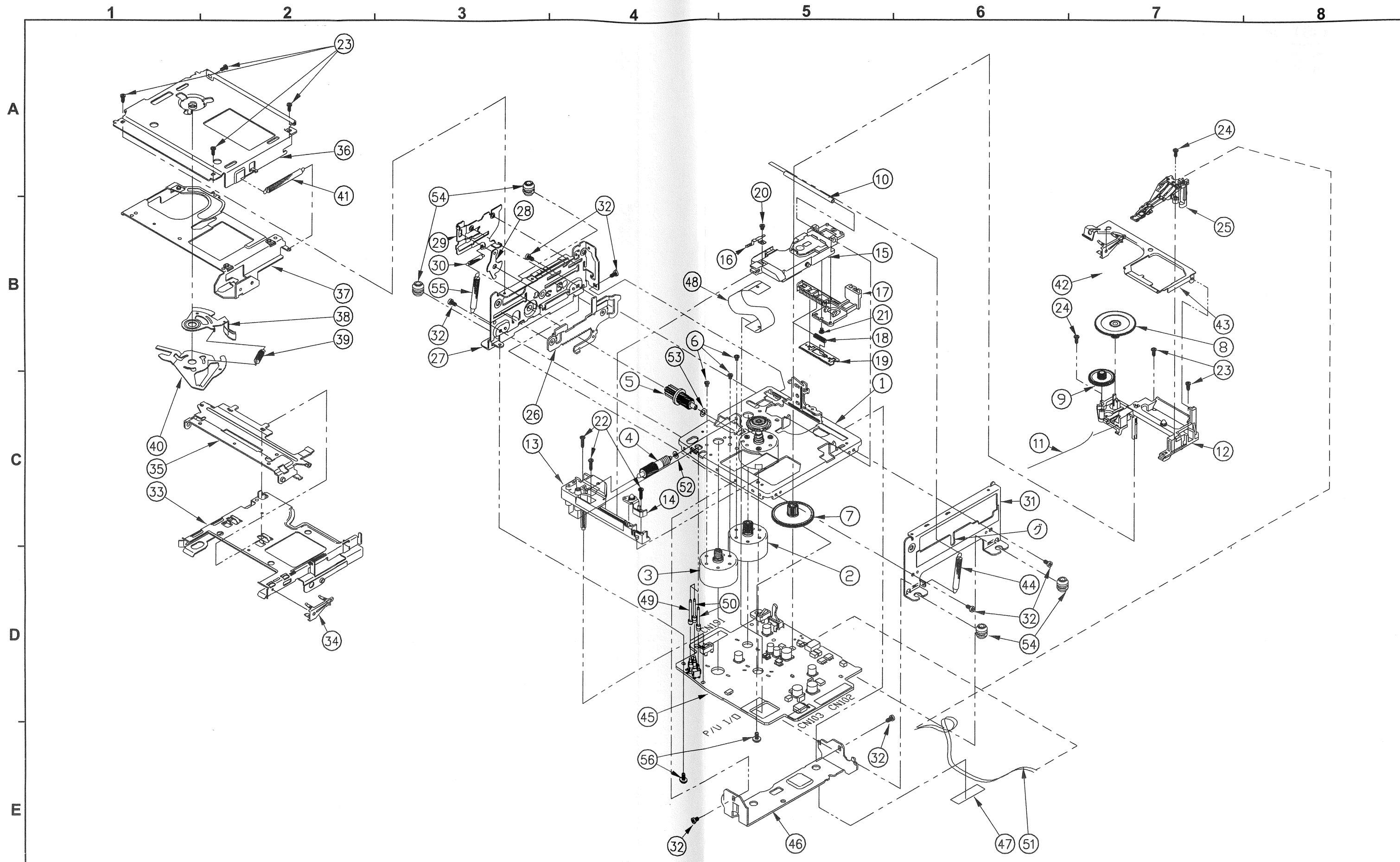


PARTS LIST OF EXPLODED VIEW

Ref. No.	Part No.	Part Name	Remarks	Q'ty	Ref. No.	Part No.	Part Name	Remarks	Q'ty		
1 1-1 1-2 1-3 2 2-1 2-2 2-3 2-4 2-5	GU- 3171	Main P.W.B. unit ass'y		1	39	146 2128 105	Front panel ass'y	Europe model	1		
		Main unit			39	146 2128 118	Front panel ass'y	U.S.A. & Canada model	1		
		Remote unit									
		Keyboard unit									
	GU- 3172	Power/Audio P.W.B. unit ass'y		1	40	146 2103 010	Trap door		1		
		Power unit			41	463 0905 102	Door spring		1		
		Line out unit			42	412 4433 009	Door fix bracket		1		
		Line in unit			43	113 1852 016	Eject knob		1		
		Display unit			44	463 0781 009	Eject spring		1		
	Selector unit			45	475 1157 017	Slit washer t0.5		1			
	3	411 1401 002	Mecha. chassis		1	46	112 0526 405	Select knob A		1	
	4	412 4491 009	Mecha. bracket		1	47	112 0527 404	Select knob B		1	
5	337 0055 009	MD mecha. unit DYMA3Z		1	48	102 0600 007	Top cover		1		
6	431 0368 001	Eject plate		1	★	49	513 3256 001	Rating sheet	Europe model	1	
7	449 0050 064	Card spacer		1	★	49	513 3256 014	Rating sheet	U.S.A. & Canada model	1	
★	8	204 6578 015	12P ZR connector cord	1	★	50	513 2303 007	Version label		1	
★	9	009 0150 009	18P FFC (0.8, AD)	1	★	51	513 2521 009	CE label	Europe model only	1	
★	10	009 0150 012	30P FFC (0.8, AD)	1	★	52	513 1519 009	Manufac. date label	U.S.A. & Canada model only	1	
	11	412 2741 049	P.W.B. holder (H=12)	2	★	53	513 0985 003	Inst. label	Europe model only	1	
	12	412 4343 102	Trans. bracket	1	★	54	513 3160 100	E3 label	U.S.A. & Canada model only	1	
△	13	233 6297 006	Power trans.	T101	1	★	55	513 3159 001	FCC/class B caution	U.S.A. & Canada model only	1
△	14	206 1031 045	Fuse	Europe model	1	★	56	513 3274 009	C-UL mark US (45Y3)	U.S.A. & Canada model only	1
△	14	206 1039 018	Fuse	U.S.A. & Canada model	1	57	475 1133 015	2W-B		1	
	15	513 2784 079	Fuse label	Europe model only	1	SCREWS					
△	16	206 1015 032	Fuse	Europe model	1	101	471 2304 058	Screw 3×8 CFS-NiP		16	
△	16	206 1039 089	Fuse	U.S.A. & Canada model	1	102	471 3303 029	Screw 3×6 CBS-B		1	
	17	513 2585 074	Fuse label	Europe model only	1	103	471 3813 014	Screw 2.6×8 CBS-B		4	
	18	412 2814 015	Card spacer (L=14)		3	104	471 3801 042	Screw 2×14 CBS-B		1	
	19	441 1468 444	Side panel (R)		1	105	473 7002 005	Screw 3×6 CBTS(S)-Z		2	
	20	441 1467 225	Side panel (L)		1	106	473 7002 021	Screw 3×8 CBTS(S)-B		4	
★	21	513 2065 002	E2 laser caution	Europe model only	1	107	473 7004 003	Screw 4×8 CBTS(S)-Z		5	
★	22	513 3294 005	Fuse caution label	U.S.A. & Canada model only	1	108	473 7015 018	Screw 3×8 CBTS(S)-B		28	
	23	412 3581 017	Front bracket		1	109	473 7505 007	Screw 2.6×8 CBTS(P)-Z		8	
	24	105 1071 003	Bottom cover		1	110	473 8065 009	Special screw		4	
★	25	513 8266 009	Dangerous mark		1						
	26	104 0159 004	Foot		4						
	27	105 1310 007	Rear panel		1						
	28	412 2285 107	Jack bracket		1						
△	29	203 3962 003	AC inlet		1						
★	30	203 4931 127	3P VH-PL connector cord		1						
★	31	203 0657 036	1P terminal wire		1						
△	32	212 4695 001	Power switch		1						
	33	414 0865 004	Insulating sheet		1						
★	34	204 0536 008	6P PH-PH connector cord		1						
★	35	204 6536 015	11P PH-PH connector cord		1						
★	36	009 0105 009	25P FFC cable		1						
★	37	009 0149 007	33P FFC cable		3						
	38	475 2004 004	4 SW ZN		1						

Ref. No.	Part No.	Part Name	Remarks	Q'ty
PACKING & ACCESSORIES (Not included EXPLODED VIEW.)				
201	501 2037 008	Carton case		1
202	513 2303 007	Version label		2
203	505 0102 089	Stylen paper		1
204	503 1319 008	Cushion (F)		1
205	503 1320 000	Cushion (R)		1
206	505 0061 010	Envelope		1
207	511 3428 008	Instruction manual		1
208	505 8017 024	Envelope		1
△	209	206 2068 004	3P AC cord set	1
△	209	206 2107 004	AC cord set (SJT)	1
			Europe model	
			U.S.A. &	
			Canada model	
210	513 1389 006	Control card base		1
211	517 1398 002	E2 POS label	Europe model	1
211	517 1399 001	UPC label	U.S.A. &	1
			Canada model	
212	515 0692 101	DEL warranty com.	U.S.A. &	1
			Canada model only	

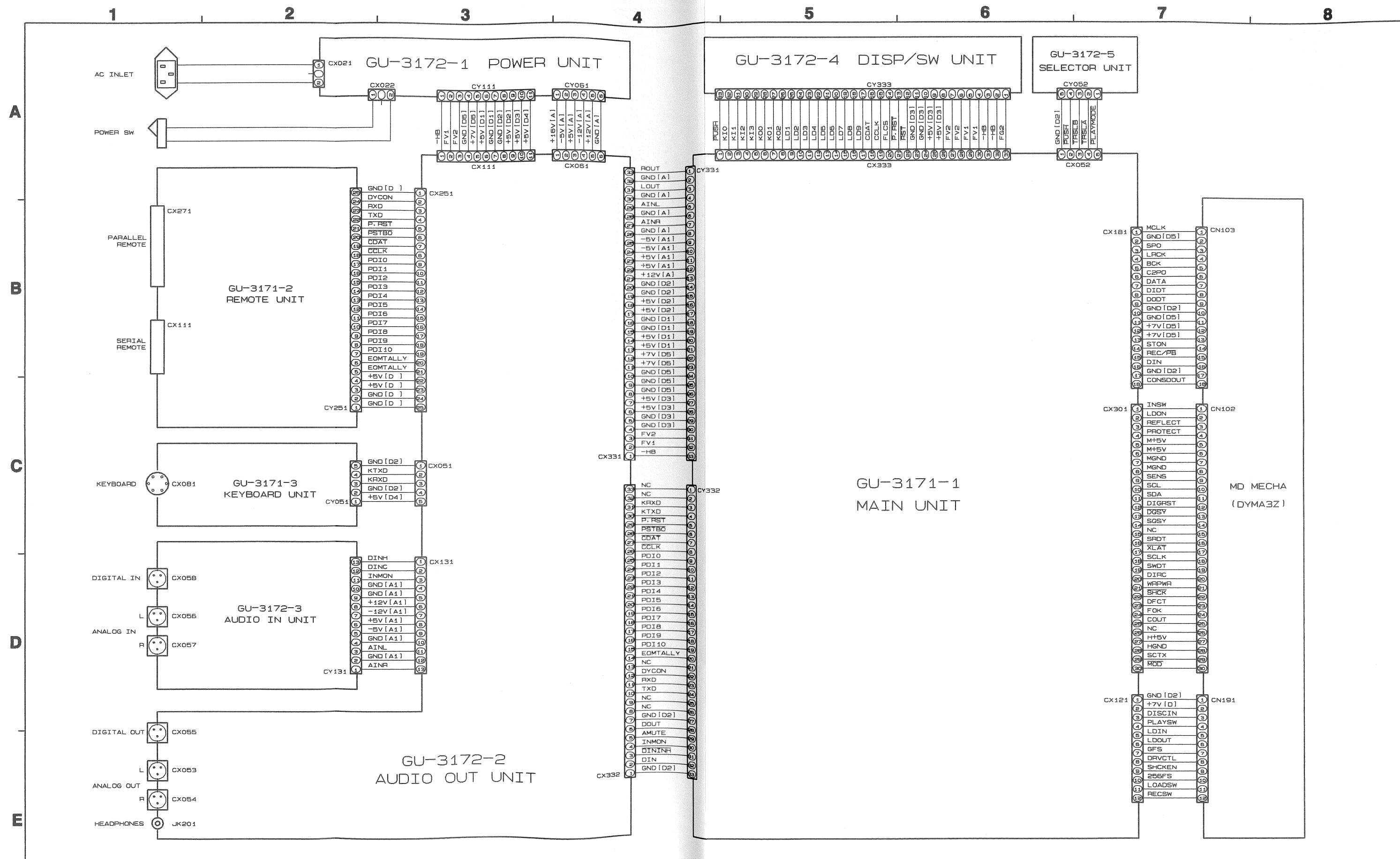
MD MECHANISM EXPLODED VIEW

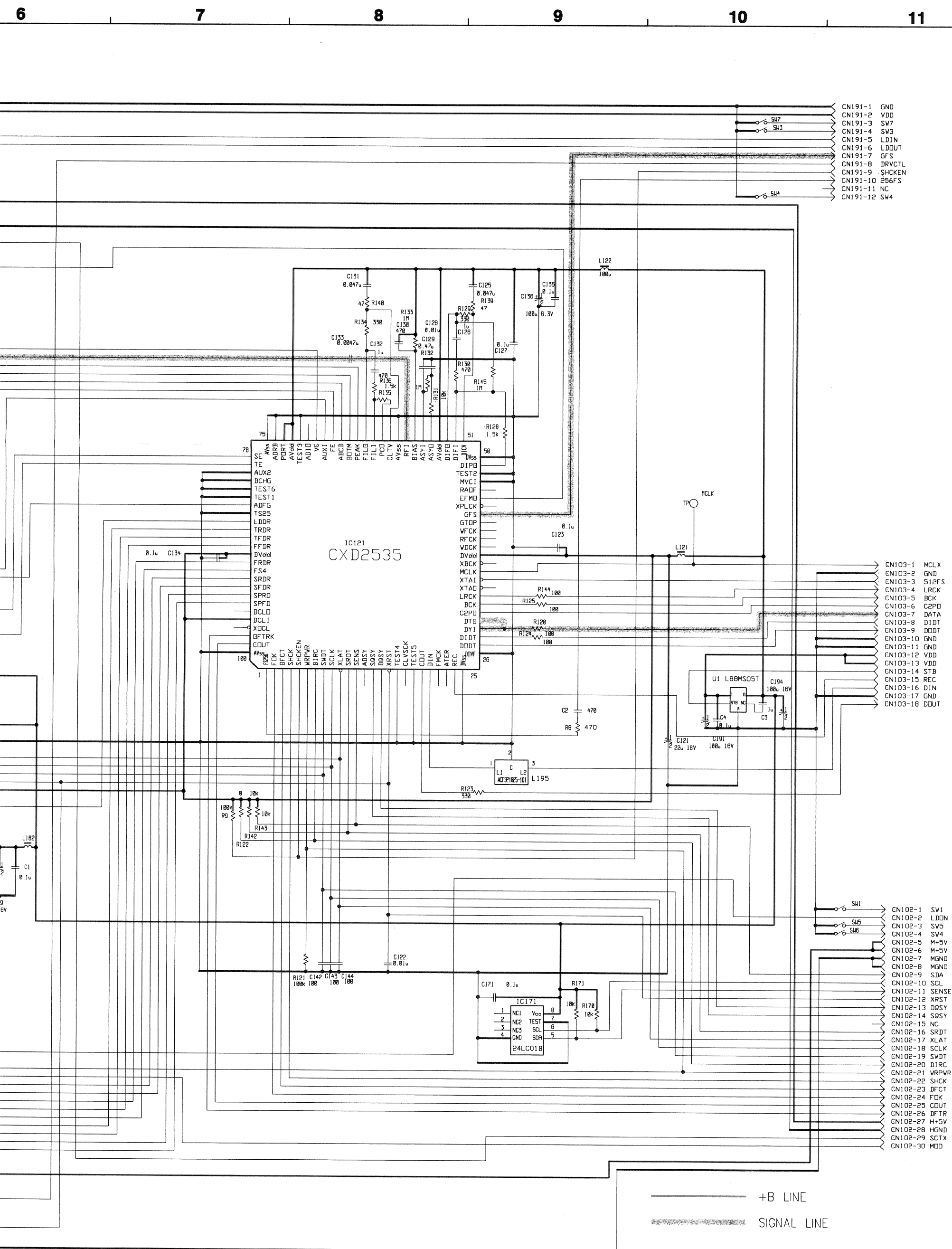


PARTS LIST OF MD MECHANISM (DYMA3Z)

Ref. No.	Part No.	Part Name	Remarks	Q'ty	Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	9DD 018S 011	MTR ass'y BLK		1	53	9DF J111 20	Poly. Washer 3.1 x 0.25		1
2	9DD 018S 012	Sled MTR ass'y		1	54	9DD R111 11	Insulator		4
3	9DD 018S 013	LDG MTR ass'y		1	55	9DD K124 11	Holder A/SPG (L)		1
4	9DD N116 14	2nd worm gear		1	56	9DU G23U 12	TP 2.0 x 5.0 ZU.CH		4
5	9DD N117 12	LDG pinion gear		1	57	9DW G57U 01	Earth lead wire		1
6	9DF G164 15	Screw 1.7 x 2		3					
7	9DD N114 12	Sled pinion		1					
8	9DD N113 12	2nd gear		1					
9	9DD N112 12	1st gear		1					
10	9DD L111 11	Shaft P/U		1					
11	9DD K112 13	Spindle stabilizer		1					
12	9DD D111 14	Rear guide BLK		1					
13	9DD D112 15	Front guide		1					
14	9DD D115 12	Locator		1					
15	9DD V111 11	Pickup unit		1					
16	9DD C132 11	P/U keeper		1					
17	9DD D114 13	Sled base		1					
18	9DD K111 11	Rack slide spring		1					
19	9DD C112 12	Rack slider		1					
20	9DU G21B 11	Screw 1.7 x 1.6		1					
21	9DU G16C 15	Screw 1.7 x 3		1					
22	9DU G23V 12	Screw 1.7 x 6		3					
23	9DU G23V 11	Screw 1.7 x 4		6					
24	9DU G16C 12	Screw 1.7 x 4		2					
25	9DD U111 11	O/W head		1					
26	9DD C115 53	LDG mode rack gear		1					
27	9DD C113 13	Side BKT(L)		1					
28	9DD C116 12	Link		1					
29	9DD C117 54	Rec. slider		1					
30	9DD K114 11	Slider SPG		1					
31	9DD C114 13	Side BKT (R)		1					
32	9DK G194 34	Screw 2 x 4		6					
33	9DD C126 14	Holder		1					
34	9DD C120 13	Shutter spring		1					
35	9DD C127 14	Holder arm		1					
36	9DD C128 12	Top plate		1					
37	9DD C129 12	Eject plate		1					
38	9DD C130 12	Eject arm		1					
39	9DD K121 14	Eject SPG		1					
40	9DD C131 12	Lock plate		1					
41	9DD K123 11	Recoil SPG		1					
42	9DD K119 11	Lifter SPG		1					
43	9DD C123 13	HD lifter		1					
44	9DD K122 11	Holder A/SPG		1					
45	9DD 0160 12	PCB control BLK		1					
46	9DD C125 51	Heat shrink		1					
47	9DE F14U 00	Filament tape	20mm						
48	9DD P113 11	FPC pick		1					
49	9DD L113 12	SW knob (L)		1					
50	9DD L112 12	SW knob (S)		2					
51	9DW G57M 10	Wire (BLK)		2					
52	9DF J111 18	Poly. Washer 2.1 x 0.25		1					

WIRING DIAGRAM



**WARNING:**

Parts marked with this symbol  have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

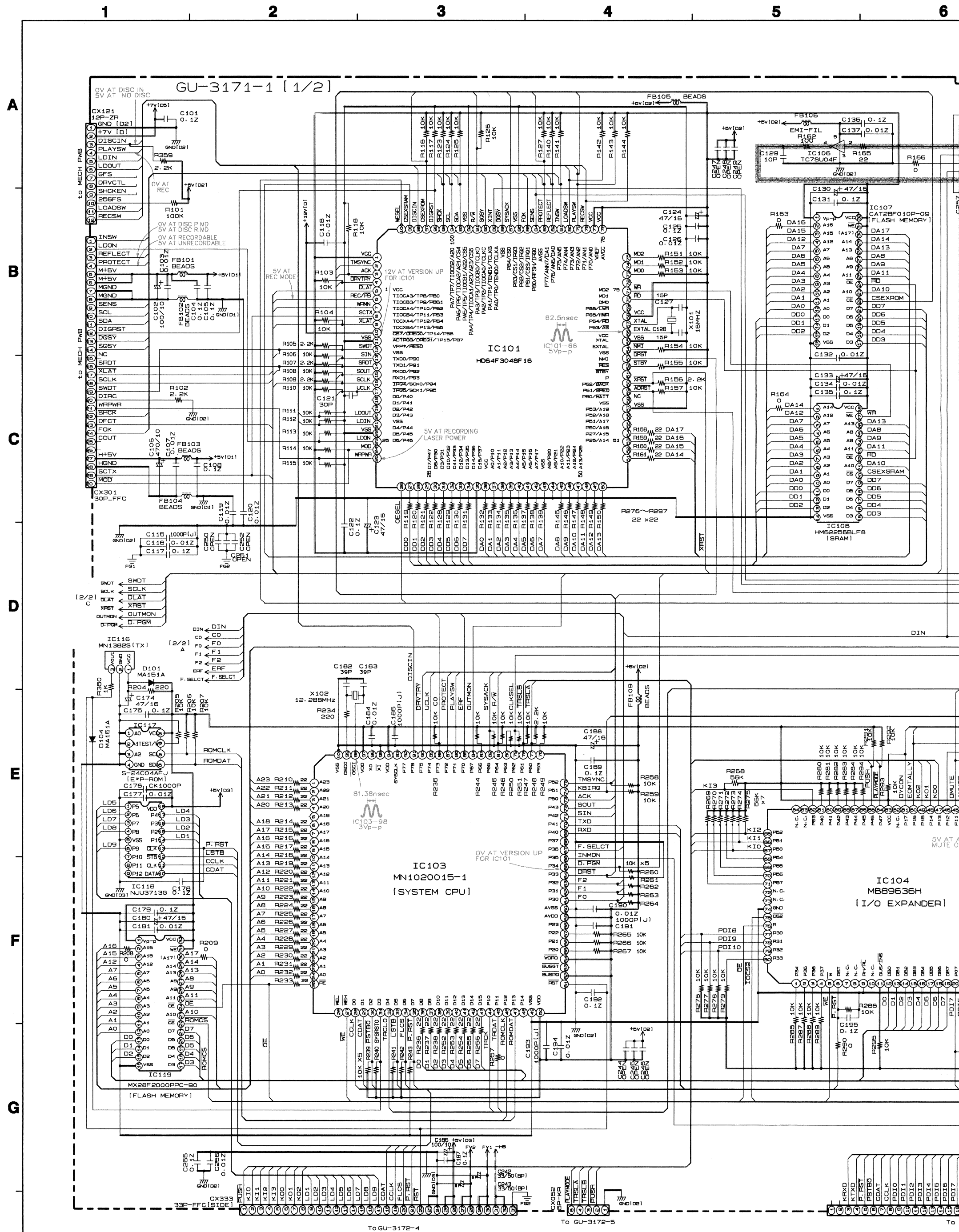
CAUTION:

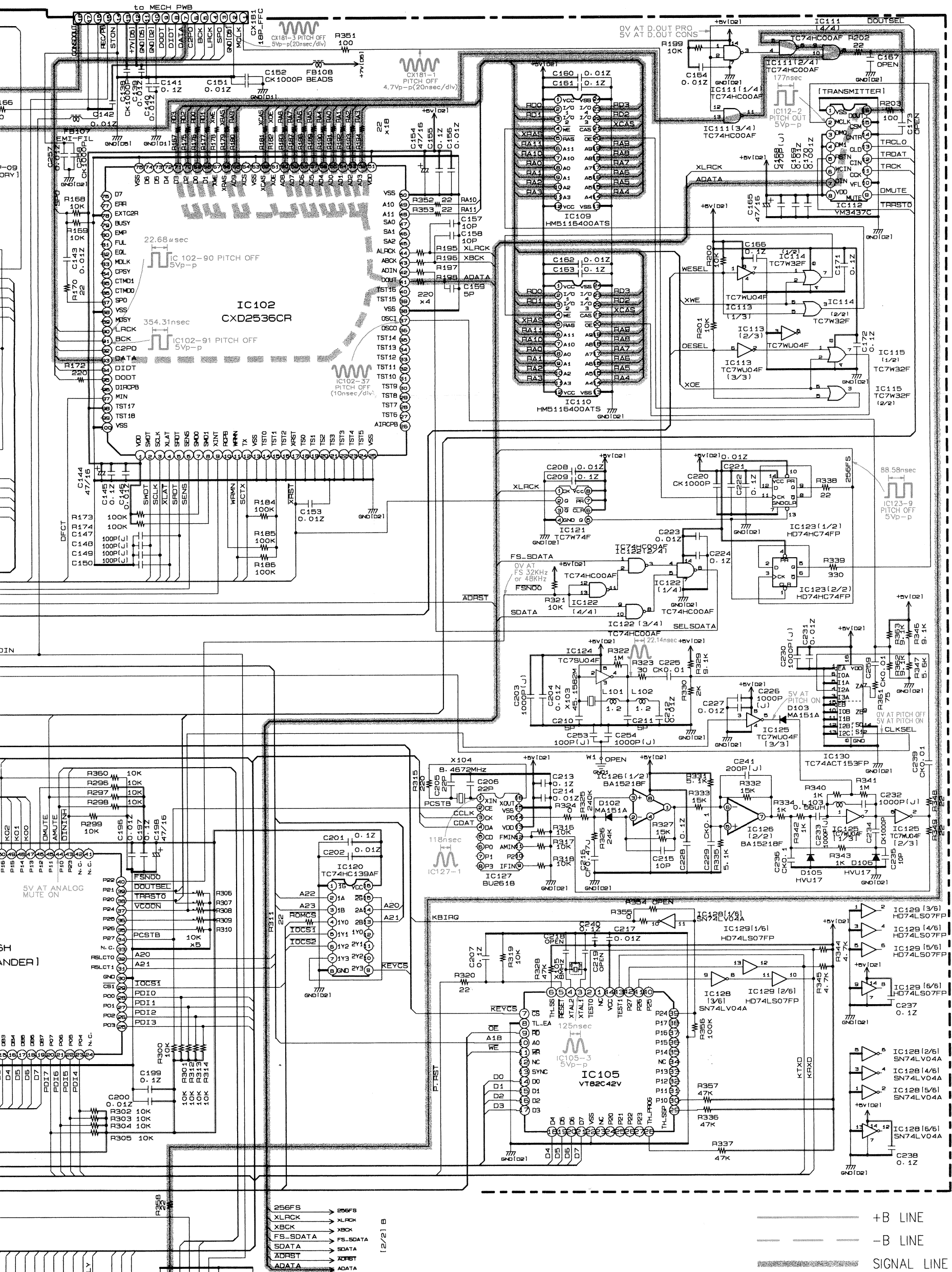
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the unit is defective.

WARNING:

DO NOT return the unit to the customer until the problem is located and corrected.

SCHEMATIC DIAGRAMS (2/5)





NOTICE

ALL RESISTANCE VALUES IN OHM. K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT
CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR
NOTICE.

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corrected.

SCHEMATIC DIAGRAMS (3/5)

1

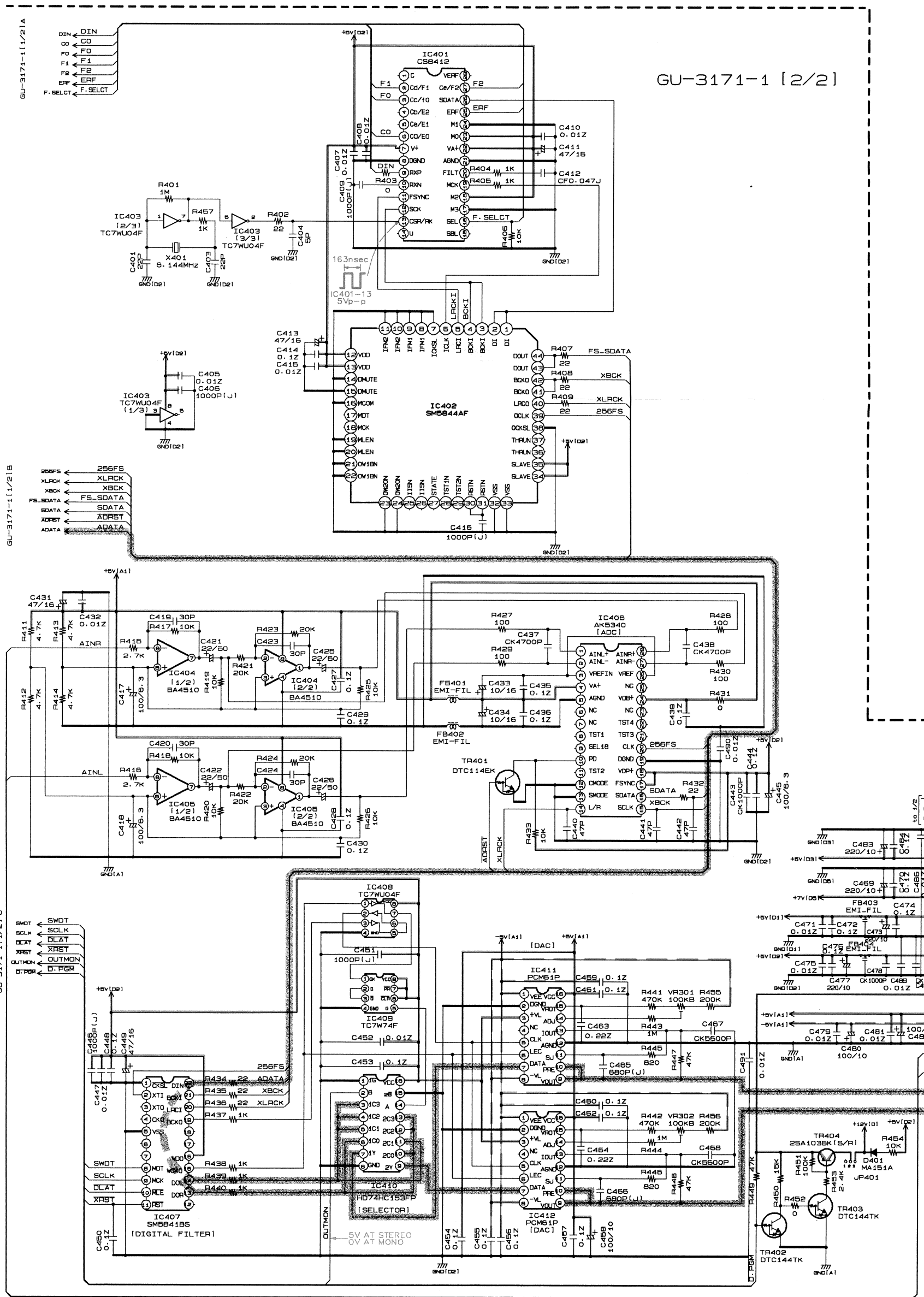
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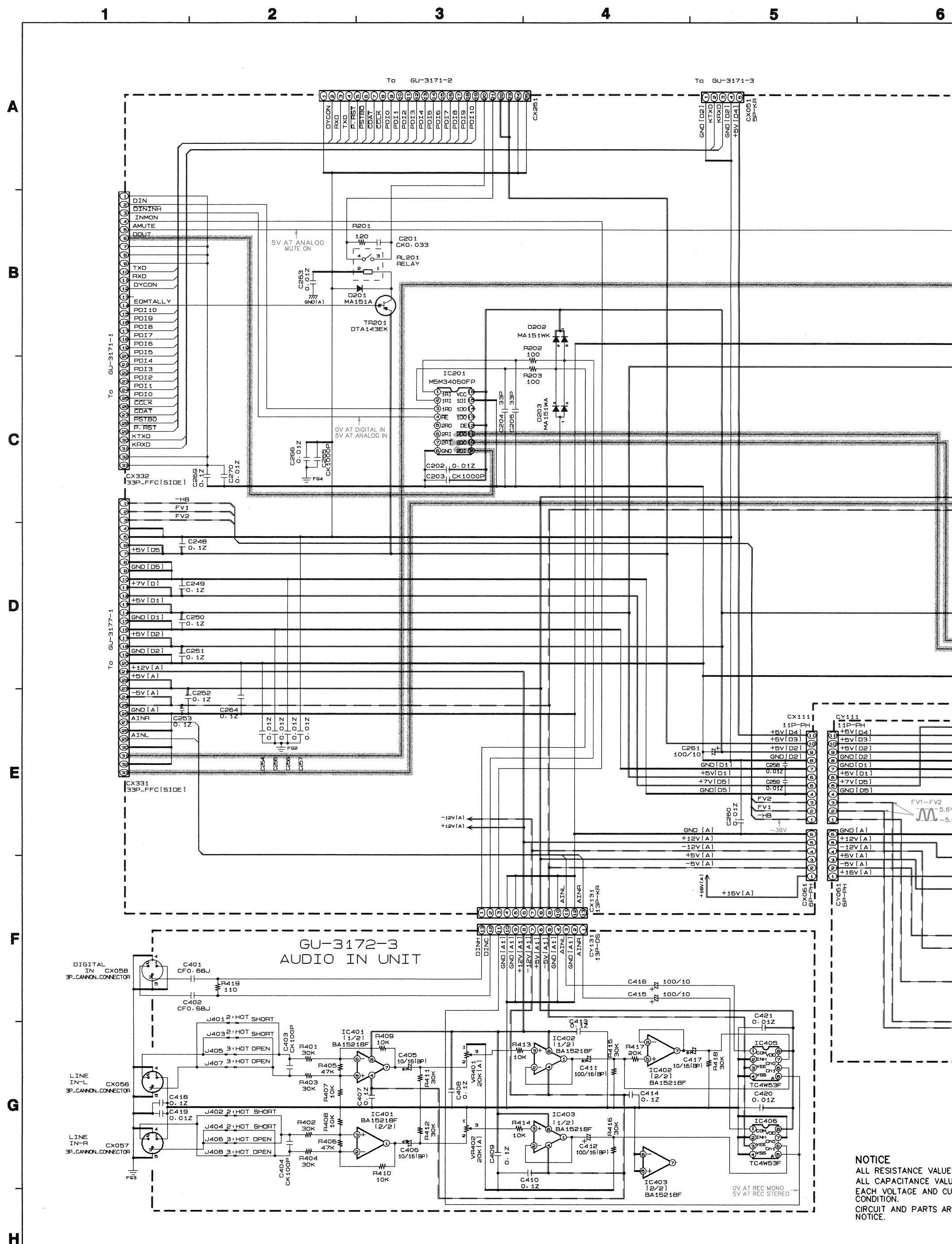
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5

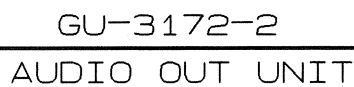
6



SCHEMATIC DIAGRAMS (4/5)



NOTICE
ALL RESISTANCE VALUES
ALL CAPACITANCE VALUES
EACH VOLTAGE AND CURRENT
CONDITION.
CIRCUIT AND PARTS ARE
NOTICE.



ALL RESISTANCE VALUES IN OHM. $k=1,000$ OHM $M=1,000,000$ OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. $P=\text{MICRO-MICRO FARAD}$
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT
CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR
NOTICE.

Parts marked with this symbol have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

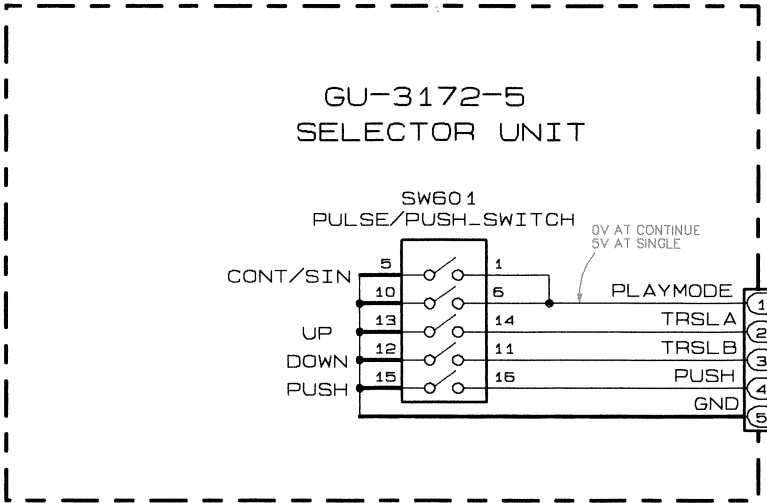
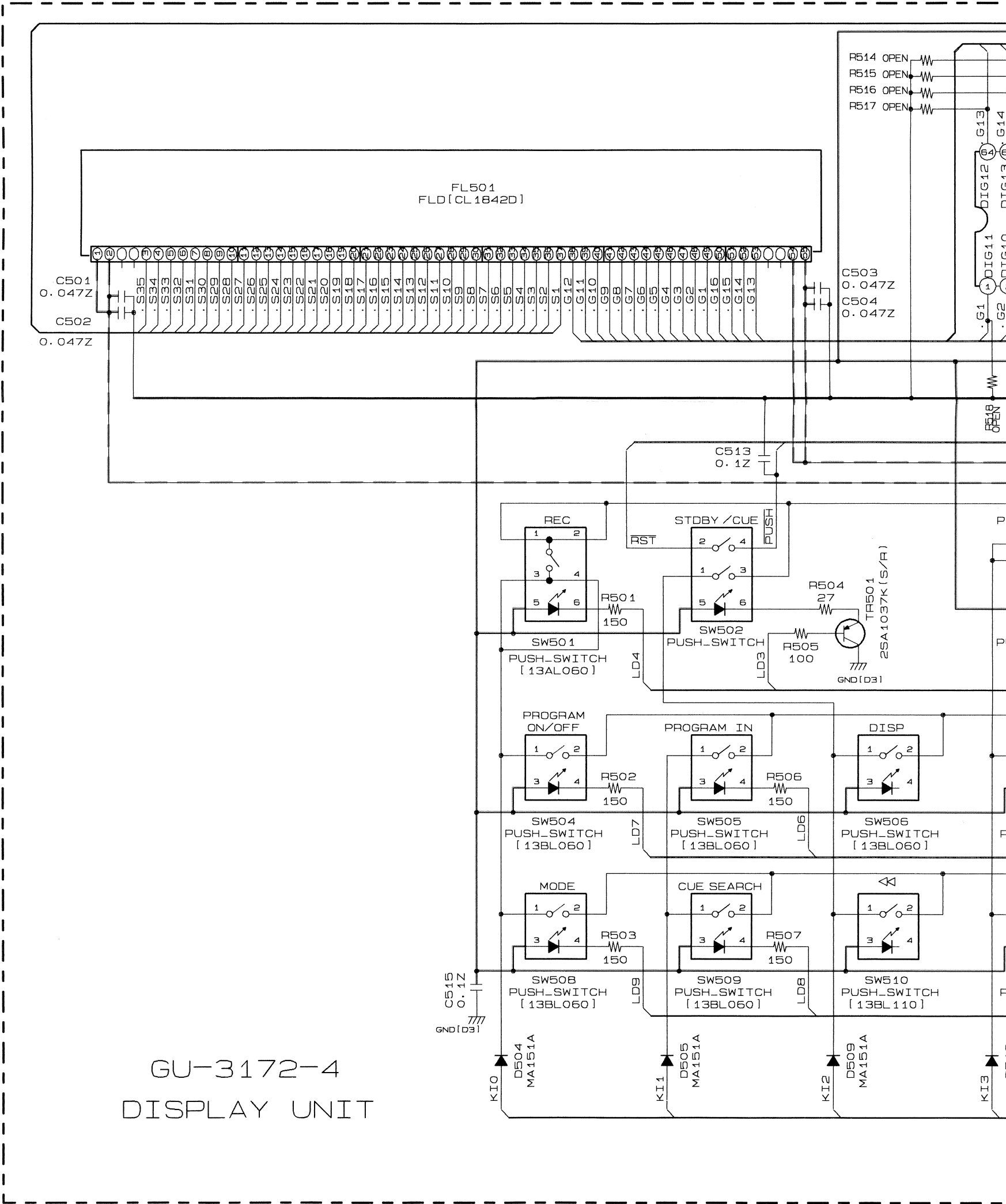
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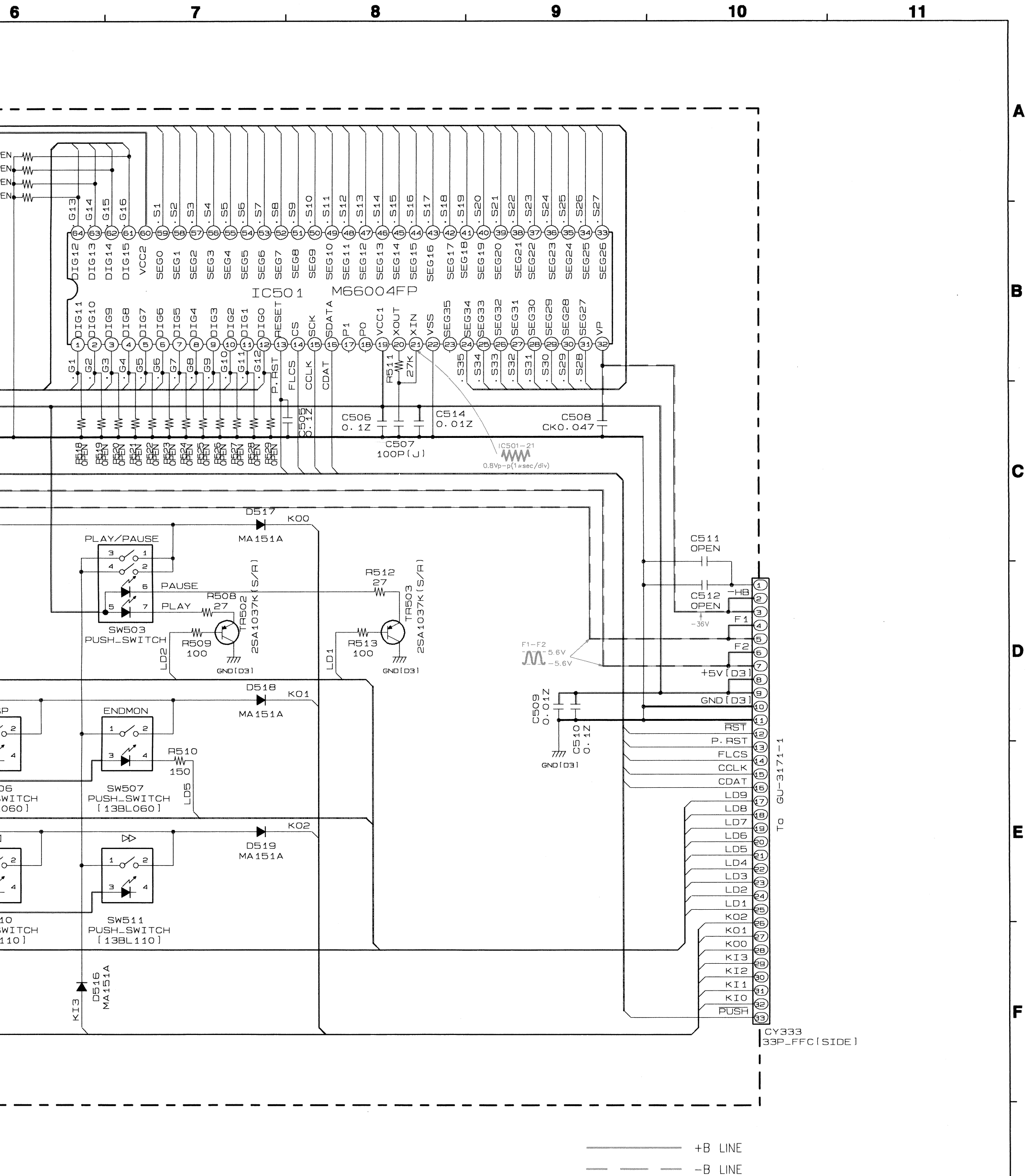
+B LINE

-B LINE

SIGNAL LINE



NOTICE
ALL RESISTOR
ALL CAPACITOR
EACH VOLTAGE
CONDITION.
CIRCUIT AND
NOTICE.

**NOTICE**

ALL RESISTANCE VALUES IN OHM. k=1,000 OHM M=1,000,000 OHM
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DENON

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14-14, AKASAKA 4-CHOME, MINATO-KU, TOKYO 107-8011 JAPAN

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